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BULLETIN

OF THE

JOSSELYN BOTANICAL SOCIETY

OF MAINE

NUMBER I, 1907

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JOSSELYN BOTANICAL SOCIETY

OF MAINE

NUMBER 1

ISSUED AUGUST 20, 1907

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1907.

PREFACE.

The aim of this Bulletin is not to add to the number of struggling botanical journals, but to furnish the members of the Josselyn Botanical Society with accounts of the annual meetings, and to stimulate interest in our local Flora.

The publishing committee are of a decided opinion that such a Bulletin is not the place for the publication of new matter, hence only abstracts of papers will be given, and, in case of local lists, all noteworthy species will be fully reported in standard botanical journals.

One copy of this Bulletin will be sent to every member of the Society. Additional copies can be obtained of Mr. Edward B. Chamberlain, Cumberland Center, Maine, at ten cents each.

DANA W. FELLOWS,
CLARENCE H. KNOWLTON,
EDWARD B. CHAMBERLAIN, } *Publication Committee.*

Josselyn Botanical Society of Maine.

Thirteenth Annual Meeting.

The thirteenth annual meeting of the Society was held at Belmont Lodge, Oxford, Maine, July 1–6, 1907, inclusive, with twelve members present. The following is a detailed report of the meeting, given day by day. The formal minutes are placed by themselves.

Dr. Fellows and Mr. Chamberlain arrived June 29th, and spent the days preceding the meeting in a general survey of the region, in consulting maps, and in making the necessary arrangements. On July 1st, they made a trip by team to the village of East Otisfield, ascending the brook from Saturday Pond for a short distance, and returning to Oxford on foot. The region was fruitful in the common woodland plants, but furnished few rarities. In the afternoon, before the arrival of the main party, Dr. Fellows and Mr. Norton explored the "Spring House Woods" as far as the Little Androscoggin. *Habenaria hookeri*, *Dirca palustris*, *Stellaria borealis*, *Equisetum scirpoides*, *Asplenium thelypteroides*, and *Polygala polygama* were found in some quantity. The same afternoon, Messrs. Stubbs and Bean, visiting the edge of Thompson Pond near the woolen mill, found *Lysimachia thrysiflora*.

At 8.00 P. M., Dr. Fellows called the members to order, and Mr. Chamberlain gave a short outline of the plans proposed for the week. These were as follows: July 2, short trips; July 3, an all-day sail on Thompson Pond; July 4, short trips at the wish of the individual members; July 5, an all-day trip to Hebron. At this time there were the following persons present, members and guests:

Mrs. M. C. Brainerd, Miss C. C. Brainerd, Miss Louise H. Coburn, Mrs. H. B. Fogler, all of Skowhegan; Mrs. C. E.

Chamberlain, of Cumberland Center, Mr. R. C. Bean, of Clinton, Mr. E. B. Chamberlain, of Cumberland Center, Dr. D. W. Fellows, Mr. A. H. Norton and Mr. A. R. Stubbs, all of Portland. Later in the evening Miss Anna Barnes, of Houlton, arrived, and Prof. L. A. Lee, of Brunswick, came Wednesday.

At the close of the meeting the members of the Society had the pleasure of meeting Miss Corning, Miss Hayes, Miss Andrews and Mrs. Starbird, of Oxford, all of whom are interested in botanical work. A very pleasant evening was spent in the discussion of the local rarities, and of favorable localities for work. Miss Andrews furnished the information that the blue lupine was abundant on the sand plains near her house, and kindly offered to direct any of the members who might care to visit the place.

July 2d. All members present united in an excursion to the sand plains in the vicinity of Whitney Pond for the purpose of finding the wild lupine. A large amount of this was found, besides *Convolvulus spithamæus*, the Canadian rock rose, the dwarf black oak, and the American hazel. The zoological offshoot of the society was also successful in finding several interesting snakes. A light rain in the afternoon prevented many of the party from collecting; a few ventured into the "Spring House Woods," finding a number of interesting, though common, plants.

At 8.00 P. M., the first business meeting of the session was called to order. At the close of the business there was an opportunity given for the inspection of specimens that had been collected by members. This formed one of the most interesting features of the meeting, and was continued each night.

July 3d. The day was taken for a trip in motor boats to the upper end of Thompson Pond. Owing to the size of the party two boats were employed, enabling greater diversity of exploration. Especial mention should be made of the kindness of Mr. Record and Mr. Jocks, in charge of the boats, who contributed much to the success of the trip. The boats coasted the eastern shore of the lake, stopping at a small brook and bog near the Oxford-Poland line. In the bog a considerable amount of *Calla palustris* was found. From here the boats went to the upper end of the pond, in the town of Casco. Here in a pine grove the ample lunch provided by the hotel was discussed, with great pleasure. A short exploration of the region furnished *Polygonum Hartwrightii*, *Woodwardia Virginica*, *Arceuthobium* and *Chiogenes serpyllifolia*. The return trip was along the western shore of the lake, with short landings at various points in the town of Otisfield. The principal stop was made at Cobb's Cove, in the midst of a deep hard-wood forest, with a rocky brook. *Habenaria macrophylla*, *Cystopteris fragilis* and *Botrychium simplex* rewarded the search. The time was altogether too short for the proper study of this interesting region, as the lateness of the hour necessitated a speedy return to the hotel.

In the evening a special session was held to consider the invitation given by Mr. George R. Howe, of Norway, who had asked the Society to visit him, offering to have his collections of minerals, pearls, and other objects of natural history on exhibition, besides acting as a guide to the party in making trips to various interesting localities. It was decided by vote of the members to accept Mr. Howe's invitation, in place of the trip to Hebron, for Friday, July 5th. At the close of the business, Mr. E. B. Chamberlain gave a short talk upon the common mosses, taking about a dozen of the common and easily recognized species, which were illustrated by fresh specimens, and telling the characters by which they could be known in the field. At the close of the talk, opportunity was given to examine the specimens in detail, and to look at the numerous flowering plants collected during the day.

July 4th. The Fourth had been set apart for individual trips, so in the morning several of the party revisited the woods at Cobb's Cove, which had proved so fruitful the day preceding, while others went to the woods below the spring. Both parties found ample reward for their pains, the most notable finds being *Ranunculus abortivus eucyclus*, *Liparis Lœsellii* and true *Habenaria orbiculata*, as well as another plant of *H. macrophylla*. The afternoon was used by most of the members for rest, though a few more ambitious ones made a trip to Greely Brook. The last regular business meeting was held in the evening, followed by the usual exhibition of specimens.

July 5th. This was the day for the Norway trip. A start was made at 9 o'clock, in the large mountain wagon of the hotel, and a most pleasant drive followed through wooded country, with a short stop at a bog on the sand plain. Mr. Howe met the party on arrival at Norway, showing them his beautiful collections of natural history objects, gems, pearls, etc. Mr. W. L. Bacon was present, also, with a large collection of the local ferns, notable for the attention paid to the varieties and forms, and for the specimens of *Pellæa gracilis*, the first collection known east of the Connecticut valley. About half an hour was passed very pleasantly here, after which the party proceeded to the cottage of Mr. Howe, situated on Lake Pennesseewassee, about two miles from Norway village. Here lunch was served. After lunch, Mr. Vivian Akers, who accompanied the party, took the Society's picture, on the steps of the cottage. From here the party visited several swampy fields, and arbor-vitæ swamps, walking in all about two miles, to a point where arrangements had been made to meet the teams. On this part of the trip, perhaps, more interesting plants were found than at any other time. Mr. Howe had taken great pains to go over the ground and mark the interesting spots, so that the most could be accomplished in the least time. *Habenaria hyperborea*, *Lonicera caerulea*, *Cypripedium spectabile*, *Listera cordata*, *Microstylis ophioglossoides*, *Cystopteris bulbifera*, large amounts of the dwarf mistletoe, three kinds of spruce, *Kalmia glauca*, and, on the return trip, *Lysimachia vulgaris* were found. The ride home was fully as pleasant as the one out in the morning. All felt well satisfied with the results of their trip.

A short business session was held in the evening, to attend to some matters that had arisen since the last regular session.

On Saturday morning most of the members departed, though Messrs. Norton, Bean and Chamberlain remained to attempt the exploration of the "horseback," between Whitney and Hogan Ponds. In this they were unsuccessful, as the swamps prevented all access.

The formal minutes of the various meetings follow.

Minutes of the Thirteenth Annual Meeting of the Josselyn Botanical Society.

FIRST BUSINESS MEETING, MUSIC ROOM, BELMONT LODGE, OXFORD, MAINE, JULY 2D, 1907.

The President, Dr. D. W. Fellows, called the meeting to order at 8.00 P. M., making a brief address, in which he reviewed the history of the Society, with a short account of each of the preceding meetings.

The records of the last meeting were read and approved.

The reports of committees resulted as follows:

Plant Distribution.—No report.

Plant Lore—No report.

Bryophytes—Mr. Chamberlain reported that the chairman, Prof. J. F. Collins, had sent a written report, but that in the hurry of packing it had been left at home. A verbal abstract was given instead.

Algæ—No report.

Fungi—No report.

Dr. Fellows reported that Mr. Samuel S. Talbot, now in the Middlesex School, Concord, Mass., is taking great interest in the lichens and is in correspondence with the leading authorities.

The President introduced the subject of the lost records of the first five meetings. After discussion,

Voted, That the President, with as many others as he shall see fit to appoint, be a committee to restore the missing records so far as may be possible.

The President appointed Messrs. Chamberlain and Knowlton to this committee.

Mr. Chamberlain read letters from Mr. C. H. Knowlton, Mr. J. O. Newton, Mr. Robert A. Ware, and Mrs. M. L.

Stevens, regretting their inability to attend the meetings, and wishing the Society success.

The matter of the issuing of a publication was brought up. This has been under discussion by several of the members during the year. The matter was referred to a committee consisting of Messrs. A. H. Norton, E. B. Chamberlain and Miss L. H. Coburn, to report recommendations at the next business meeting. The committee was also instructed to report upon the advisability of the Society undertaking the publication of a revised list of Maine plants.

The time of holding the meeting being under discussion, it was found that the last of August would be convenient for all persons present.

The following Nominating Committee was appointed by the President: Mr. A. R. Stubbs, Mr. E. B. Chamberlain, Miss Barnes.

Adjourned until 8.00 P. M., July 4th.

SECOND BUSINESS MEETING, MUSIC ROOM, BELMONT LODGE, OXFORD, MAINE, JULY 4TH, 1907.

The meeting was called to order by the President at 8.00 P. M.

The Nominating Committee reported as follows:

For President—Dr. Dana W. Fellows.

For Vice-Presidents—Mr. M. L. Fernald, Miss Kate Furbish, Mr. P. L. Ricker.

For Secretary—Mr. A. H. Norton.

For Treasurer—Mr. C. H. Knowlton.

Committee of Arrangements—Mr. O. W. Knight, chairman; Miss M. A. Clark, Miss L. Annie Hunter.

Standing Committees—Plant Distribution: Mr. M. L. Fernald, Mr. O. W. Knight, Mr. C. H. Knowlton, Mr. A. H. Norton, Miss L. H. Coburn. *Plant Lore:* Mrs. M. P. Salsman, Mrs. H. K. Morrell. *Bryophytes:* Prof. J. F. Collins, Mr. E. B. Chamberlain, Mrs. M. L. Stevens. *Algæ:* Mr. F. S. Collins. *Fungi:* Mr. P. L. Ricker.

Voted, To accept the report. The Secretary was instructed to cast the ballot of the Society for the officers named. The President declared the officers elected.

The Committee on Publications reported as follows: Recommended, that the Society issue a sheet called the Bulletin of the Josselyn Botanical Society of Maine; that the frequency of its issue be determined by the publication committee; that the publication contain an abstract of the minutes and an account of the meetings of the Society, with a list of the plants collected or identified at the meeting, and such other matters of interest as the committee shall determine; that the Publication Committee consist of the President, the Treasurer, and one other to be appointed by the President; that the matter of an annotated list of Maine plants be undertaken, but referred to the Publication Committee with instructions to report at the next annual meeting. The report was signed by all the committee.

Prof. L. A. Lee offered the amendment, accepted by the committee, that the name of the publication be left with the committee.

After discussion, the amended report was accepted, and the recommendations adopted by vote of the Society.

The President appointed Mr. Chamberlain as the third member of the Publication Committee.

Mrs. M. C. Brainerd and Mrs. Hattie B. Fogler, of Skowhegan, Mr. Ralph C. Bean, of Clinton, and Miss Helen Mayo, of South Limington, were elected to membership.

Adjourned until 8.00 P. M., July 5th.

THIRD BUSINESS MEETING, MUSIC ROOM, BELMONT LODGE, OXFORD, MAINE, JULY 5TH, 1907.

The meeting was called to order by the President at 8.00 P. M.

Mrs. C. F. Starbird, of Oxford, and Miss M. I. Corning, of East Hartford, Conn., were elected to membership.

On motion,

Voted, That a committee be appointed to consider resolutions of thanks, and that these resolutions be spread upon the records.

The President appointed Mr. A. H. Norton, Mr. Ralph C. Bean, and Miss L. H. Coburn as members of this committee.

Mr. Chamberlain spoke of the necessity of having actual specimens of plants upon which to establish records for distribution, and urged that specimens be deposited by members of the Society in the herbarium of the Portland Society of Natural History. He spoke especially of the need of specimens of the common plants, and urged all to make this disposal of their duplicates. Discussion followed.

On motion of Prof. Lee,

Voted, That the curator of the Portland Society of Natural History be requested to report at the next meeting of the Society the number of specimens received in accordance with this recommendation.

The President then read a short paper, giving a list of the ferns and fern allies that had been collected or observed on the trips. The ferns numbered twenty-seven species, and the allies nine species.

Adjourned, *sine die*.

A. H. NORTON,
Secretary.

REPORT OF THE COMMITTEE ON BRYOPHYTES, 1907.

During the past year some progress has been made towards a better understanding of the geographic distribution of certain groups of mosses, though not to the extent that the committee could wish. Nearly a year ago the chairman published in RHODORA a list of the species of the *Buxbaumiaceæ*, *Georgiaceæ* and *Polytrichaceæ* which were known to occur in New England. Of the twenty-five species and varieties there enumerated, nineteen occur in Maine. Since the publication of this list, three other species of these three families have been added to the Maine list, viz.: *Polytrichum gracile*, *Catharinæa crispa* and *C. Macmillani*. The latter was collected by Miss Alice L. Crockett in Camden, and determined by Mr. Chamberlain, as was also the *Catharinæa crispa*. *C. Macmillani* has not previously been recorded from New England.

According to the statement of Dr. A. W. Evans (RHOD. **9**: 73), who has been at work for some time on the New England hepaticæ, there are now known from New Hampshire one hundred and five species, from Connecicut one hundred and two species, but only eighty-eight from Maine. This points to the fact that there has been less exploration for hepatics in Maine than in either of the States mentioned. Probably more species of hepatics grow in Maine than in any other New England State. We think this statement will be shown to be fully justified as soon as the State is fully explored.

J. FRANKLIN COLLINS,
EDWARD B. CHAMBERLAIN,
M. L. STEVENS.

June 8, 1907.

RESOLUTIONS.

In behalf of the Josselyn Botanical Society we wish to express our appreciation of the splendid manner in which we have been entertained, and of the many attentions shown us by our hostess, Miss Fisher, of Belmont Lodge. We wish also to extend our thanks to Mrs. C. F. Starbird, Miss Hayes, Miss Andrews, and Miss Corning, for their assistance and guidance in the neighborhood of Oxford.

The Society is also much indebted to Messrs. George R. Howe, Walter L. Bacon, and Vivian Akers for their reception and guidance in the region about Norway.

For the success of one of the best meetings ever held, we owe our thanks to Mr. Chamberlain, of the Committee of Arrangements.

ARTHUR H. NORTON,
RALPH C. BEAN,
LOUISE H. COBURN.

List of Plants.

EDWARD B. CHAMBERLAIN.

The following list comprises the flowering plants and pteridophytes observed or collected in the vicinity of Oxford, Maine, during the meeting of the Josselyn Botanical Society, July 1–6, 1907. As most of the collecting was done in the three towns of Oxford, Otisfield and Norway, the list is arranged to show those towns only. A few additional records are given at the end. The sign 0 means that the plant was seen; the sign X that a specimen was preserved, but the absence of a sign does *not* mean that the plant does not occur.

	Ox.	N.	Ot.
Botrychium matricariæfolium Braun.	X		
obliquum Muhl.		0	
simplex Hitchcock.	X		
virginianum Swartz.	X		0
Ophioglossum vulgatum L.		X	
Osmunda cinnamomea L.	X	0	0
claytoniana L.	X		
regalis L.	X	0	0
Asplenium filix-fœmina Roth.	X		
thelypteroides Desv.	0		X
Cystopteris bulbifera Bernh.		X	
fragilis Bernh.			X
Dicksonia pilosiuscula Willd.	X		0
Nephrodium Boottii Davenp.	X		
cristatum Michx.	0		
cristatum clintonianum D. C. E.	X		
marginale Michx.	X		
noveboracense Desv.	0		0
spinulosum Desv.	X		
spinulosum intermedium Dav.	0		
Thelypteris Desv.	0		
Onoclea sensibilis L.	0		0
Struthiopteris Hoffm.	0		
Phegopteris Dryopteris Fée.	X		0
polypodioides Fée.	X		0
Polypodium vulgare L.	0		X
Polystichum acrostichoides Schott.	X		
Pteris aquilina L.	0	0	0

	Ox.	N.	Ot.
Equisetum arvense L.	0		
fluviatile L.	0		
scirpoides Michx.	x		x
sylvaticum L.	0		
Lycopodium clavatum L.	0		0
complanatum flabelliforme Fernald.	0		0
lucidulum Michx.	x		0
obscurum L.	0		0
tristachyum Pursh.	0		0
Abies balsamea Mill.	0		
Jumiperus communis L.	0		
Larix americana Michx.	0		
Picea alba Link.		x	
nigra Link.		0	
rubra Link.	0	0	0
Pinus resinosa Ait.	0		0
rigida Mill.	0		
Strobus L.	0		
Taxus canadensis Willd.			0
Thuya occidentalis L.		0	
Tsuga canadensis Carr.	0		
Typha latifolia L.	0	0	
Potamogeton natans L.			0
Sagittaria latifolia Willd.	0		
Agropyrum repens Beauv.	0		
Agrostis alba vulgaris Thurb.	x		
Alopecurus pratensis L.	0		
Anthoxanthum odoratum L.	0		
Brachyelytrum aristatum Beauv.	0		0
Calamagrostis canadensis Beauv.	0		
Dactylis glomerata L.	0	0	
Danthonia spicata Beauv.	x	x	0
Festuca elatior pratensis Gray.	x		
Myurus L.	x		
Glyceria borealis Batchr.		x	
canadensis Trin.	0		
grandis Wats.	0		
nervata Trin.	x	x	
torreyana A. S. Hitch. (=*elongata*)	x		
Oryzopsis asperifolia Michx.	0		0
canadensis Torr.	x		
Panicum boreale Nash.	x		
clandestinum L.	0		
crus-galli L.	0		
depauperatum Muhl.	0		x
linearifolium Scribn.		x	
macrocarpon LeConte.	x		
unciphyllum Trin.	x		
xanthophysum Gray.	x		
Phleum pratense L.	0	0	0
Poa annua L.	0		
compressa L.	x		
flava L.	x		
pratensis L.	x		
Carex albicans Willd.	x		
brunnescens Poir.	x	x	x
canescens L.		x	x
canescens disjuncta Fernald.	0		
conoidea Schkuhr.		x	

	Ox.	N.	Ot.
Carex crinita Lam.	●	●	●
debilis rudgei Bailey.	x	x	●
deweyana Schwein.	x		x
festucacea Schkuhr.	x		
filiformis latifolia Boeckl.	x		
flava elatior Schlecht.		x	
gracillima Schwein.	x		
interior Bailey. (?)		x	
intumescens Rudge.	x	●	●
laxiflora varians Bailey.	x	●	x
lenticularis Michx.		x	
leptalea Wahl.	x	●	x
lupulina Muhl.	●	x	
lurida Wahl.	●	●	●
mirabilis Dewey.	x		
pallescens L.	●	●	x
pauciflora Lightf.		x	
paupercula pallens Fernald.		x	
pennsylvanica Lam.	●		
pilulifera L.	x		
Pseudo-cyperus L.	●		
rosea radiata Dewey.		x	
rostrata utriculata Bailey.	x		
scabrata Schwein.			x
scoparia Schkuhr.	x		
stellulata Good.	x	x	
stellulata angustata Carey.			x
stipata Muhl.	x	●	●
straminea Willd.	x		
stricta Lam.	x		
tenella Schkuhr.	x		x
tribuloides Wahl.	x		
tribuloides reducta Bailey.	x		
trisperma Dewey.	x	x	
umbellata Schkuhr.	x		
vesicaria monile Fernald.	x		●
virescens swanii Fernald.			x
vulpinoidea Michx.	x	x	
Dulichium spathaceum Pers.	●		
Eleocharis acicularis R. Br.	●		●
obtusa Schultes.	●		
palustris R. Br.	●		
tenuis Schultes.	●		●
Eriophorum tenellum Nutt.		x	
viridi-carinatum Fernald.		x	
viridi-carinatum Fellowsii Fernald.		x	
Scirpus atrocinctus Fernald.	●	●	●
georgianus Harper. (RHOD. **8:** 163).	●		
hudsonianus Fernald. (*Eriophorum alpinum*).		x	
rubrotinctus Fernald.	●		
validus Vahl.	●		
Acorus calamus L.	●		
Arisæma triphyllum Torr.			●
Calla palustris L.	x		
Tradescantia virginica L.		x	
Juncus articulatus L.	x		
bufonius L.	●		
effusus L.	●	●	●
marginatus Rostk.	●		x

	Ox.	N.	Or.
Juncus pelocarpus E. Meyer.			0
tenuis Willd.	x		
Luzula campestris multiflora Celak.	0		0
saltuensis Fernald.	x		
Asparagus officinalis L.	0		
Clintonia borealis Raf.	0		
Lilium canadense L.	0		0
philadelphicum L.	0		
Maianthemum canadense Desv.	0	0	
Medeola virginica L.	0		
Oakesia sessilifolia Wats.	0		
Polygonatum biflorum Ell.	0		
Smilacina racemosa Desf.	0		0
stellata Desf.	0		
trifolia Desf.		x	
Smilax herbacea L.	x		
Streptopus amplexifolius DC.			0
roseus Michx.	0		0
Trillium erectum L.	0		
undulatum Willd. (*erythrocarpum*).	0		
Veratrum viride Ait.	0		0
Iris versicolor L.	0		
Sisyrinchium angustifolium Mill.	0		
Corallorhiza innata R. Br.	0		
multiflora Nutt.	0		
Cypripedium acaule Ait.	0		
spectabile Salisb.		x	
Goodyera pubescens R. Br.	0		
Habenaria blephariglottis Torr.	x		
hookeri Torr.	x		
hyperborea R. Br.		x	
macrophylla Goldie.			x
orbiculata Torr.			x
tridentata Hook.	0		
virescens Spreng.	0		
Liparis Lœselii Rich.	x	x	
Listera cordata R. Br.		x	
Microstylis ophioglossoides Nutt.		x	
Pogonia ophioglossoides Nutt.		0	
Populus grandidentata Michx.	0		0
tremuloides Michx.	0		0
Salix alba vitellina Koch.	x		
cordata Muhl.	x		
discolor Muhl.	0		
humilis Marsh.	x		
Myrica asplenifolia Endl.	0		0
Gale L.	0	0	0
Alnus incana Willd.	0	0	0
mollis Fernald.	0		0
Betula lutea Michx. f.	0		
papyrifera Marsh.	0		
populifolia Ait.	0		
Carpinus caroliniana Walt.	0		
Corylus americana Walt.	x		
rostrata Ait.	0		
Fagus ferruginea Ait.	0		
Ostrya virginica Willd.	0		
Quercus alba L.	0		
ilicifolia Wang.	x		

	Ox.	N.	Ot.
Quercus rubra L.	0		
Ulmus americana L.	0		
Urtica gracilis Ait.	0		
Arceuthobium pusillum Peck.		x	
Comandra umbellata Nutt.	x		0
Polygonum amphibium L.	0		
aviculare L.	0		
cilinode Michx.			0
Convolvulus L.	0		
Hydropiper L.	0		
Persicaria L.	0		
sagittatum L.	0		0
Rumex Acetosella L.	0		0
Britannica L.	0		
crispus L.	0		
Chenopodium album L.	0		
Amarantus retroflexus L.	0		
Portulacca oleracea L.	0		
Arenaria lateriflora L.	x		
Cerastium vulgatum L.	0		
Sagina procumbens L.	0		x
Silene Cucubalus Wibel.	x		
Spergula arvensis L.	x		
Spergularia rubra Presl. (*Buda rubra*).	0		0
Stellaria borealis Bigel.	x		
graminea L.	0		
longifolia Muhl.	x		
media Smith.	0		
Nuphar advena Ait. f.	0		
Actæa alba Bigel.	0		x
rubra Willd.	0		
Anemone cylindrica Gray.	x		
quinquefolia L.	0		0
Aquilegia canadensis L.	0		0
Clematis virginiana L.	0	0	0
Coptis trifolia Salisb.	0		
Hepatica triloba Chaix.	x		
Ranunculus abortivus L.	0		
abortivus eucyclus Fernald.	x		
acris L.	0	0	0
Flammula reptans E. Meyer.	0		
repens L.	0		
Thalictrum dioicum L.			0
polygamum Muhl.	0	0	0
Brassica campestris L.	0		
juncea Cosson.	0		
sinapistrum Boiss.	0		
Capsella bursa-pastoris Mœnch.	0	0	0
Cardamine pennsylvanica Muhl.	x		
Lepidium virginicum L.	0		
Nasturtium officinale R. Br.	x		
terrestre R. Br.	0		
Raphanus raphanistrum L.	0		
Sisymbrium officinale Scop.	0		
Sarracenia purpurea L.		x	
Drosera rotundifolia L.	0	x	
Sedum Telephium L.	0		0
Chrysosplenium americanum Schwein.	0		x
Mitella nuda L.	x	x	

	Ox.	N.	Or.
Ribes oxyacanthoides L.	0		
Tiarella cordifolia L.	0		
Hamamelis virginiana L.	0		
Agrimonia gryposepala Wallr.			0
Amelanchier canadensis Medic.	x		
oblongifolia Roem.	x		
spicata Koch.	x		
Dalibarda repens L.	0		
Fragaria virginiana Mill.	0		
Geum rivale L.		0	
strictum Ait.	0		
Potentilla argentea L.	0		0
monspeliensis L.	0		0
recta L.		x	
simplex Michx.	x		
Prunus pennsylvanica L. f.	0		
serotina Ehrh.	0		
virginiana L.	0		
Pyrus americana DC.			0
arbutifolia L. f.	0		
Malus L.	0		
Rosa cinnamomea L.	0		
humilis Marsh.	0		
nitida Willd.	0		
rubiginosa L.	0		
Rubus frondosus Bigel.	x		
occidentalis L.	x		
odoratus L.	0		0
procumbens Muhl. (?)	x		
idaeus strigosus Maxim.	0		
triflorus Richardson.	0		
Spiræa salicifolia latifolia Ait.	0		0
tomentosa L.	0		
Amphicarpæa monoica Nutt.	0		
Apios tuberosa Moench.			0
Desmodium acuminatum DC.	0		
canadense DC.	0		
Lupinus perennis L.	x		
Medicago denticulata Willd.	x		
lupulina L.		0	
Trifolium agrarium L.	0		0
hybridum L.	0	0	0
pratense L.	0	0	0
repens L.	0	0	0
Vicia Cracca L.	0	x	0
Erodium cicutarium L'Her.	x		
Impatiens biflora Walt. (*fulva*).	0		
Oxalis Acetosella L.	0		
cymosa Small.			0
Polygala polygama Walt.	x	x	
Euphorbia Cyparissias L.			0
hirsuta Wieg.	0		
Rhus Toxicodendron L.	0		
typhina L.	0		
Ilex verticillata Gray.	0	0	
Nemopanthes fasicularis Raf.	0	0	
Acer pennsylvanicum L.	0		
rubrum L.	0		
saccharinum L.	0		

	Ox.	N.	Ot.
Acer saccharum Marsh.	0		
spicatum L.	0		0
Rhamnus alnifolia L'Her.		x	
Tilia americana L.	0		0
Malva rotundifolia L.	0		
Hypericum boreale Bickn.	0		
canadense L.	0		
ellipticum Hook.	0		
perforatum L.	0		
virginicum L.	0		
Helianthemum canadense Michx.	x		
Viola fimbriatula J. E. Smith.	x		
labradorica Schrank.	x		
pallens Brainerd. (*blanda Auct.*)	x		
renifolia Gray.	x		
rotundifolia Michx.	x		
septentrionalis Greene.	x		
sororia Willd.	x		
Dirca palustris L.	x		x
Circæa alpina L.	0		0
Epilobium adenocaulon Haussk.	0		
angustifolium L.	0		
coloratum Muhl.	0		
strictum Muhl.		0	
Ludwigia palustris Ell.	0		
Œnothera biennis L.	0		
pumila L.	0		
Aralia hispida Vent.			0
nudicaulis L.	0		
racemosa L.	0		0
trifolia D. & P.			0
Carum carui L.	0		
Cicuta maculata L.	0		
Daucus Carota L.	0		
Hydrocotyle americana L.	0		0
Pastinaca sativa L.	0		
Sanicula marilandica L.	x		0
Sium cicutæfolium Gmel.	0		
Cornus alternifolia L. f.	0		
canadensis L.	0	0	0
circinata L'Her.	0		
Andromeda glaucophylla Link.		x	
ligustrina Muhl.	0		0
Cassandra calyculata Don.	0	0	
Chimaphila umbellata Nutt.	0		
Chiogenes serpyllifolia Salisb.	0		
Epigæa repens L.	x		x
Gaultheria procumbens L.	0		0
Gaylussacia resinosa T. & G.	0		
Kalmia angustifolia L.	0		
glauca Ait.		x	
Ledum grœnlandicum Oeder.		0	
Moneses grandiflora Salisb.	x		
Monotropa Hypopitys L.	0		
uniflora L.	0		
Pyrola chlorantha Swartz.	0		
elliptica Nutt.	0		
rotundifolia L.	0		
secunda L.	0		0

	Ox.	N.	Or.
Rhododendron Rhodora Don.	0	0	
Vaccinium corymbosum L.	0		
macrocarpon Ait.	0		
Oxycoccus L.		x	
pennsylvanicum Lam.	0		
vacillans Kalm.	0		
Lysimachia quadrifolia L.	0		
stricta Ait.	0		0
thyrsiflora L.	x		
vulgaris L.		x	
Steironema ciliatum Raf.	0		
Trientalis americana Pursh.	0		
Fraxinus americana L.	0		
nigra Marsh.	0		0
Apocynum androsæmifolium L.	0		
Asclepias incarnata pulchra L.	0		
phytolaccoides Pursh.	x		0
syriaca L.	0		
Convolvulus sepium L.	0	0	0
spithamæus L.	x	0	
Verbena hastata L.	0		
Calamintha Clinopodium Benth.	x		
Galeopsis Tetrahit L.	0		
Hedeoma pulegioides Pers.	0	0	
Leonurus Cardiaca L.	0		
Lycopus sinuatus Ell.	0		
uniflorus Michx.	0		
Mentha canadensis L.	0		
piperita L.			x
Nepeta Cataria L.		0	
Prunella vulgaris L.	0		
Solanum Dulcamara L.	0		
Chelone glabra L.		0	
Melampyrum americanum Michx.	0		
Mimulus ringens L.	0		
Pentstemon lævigatus Digitalis Gr.	0		
Verbascum Thapsus L.	0		
Veronica scutellata L.	0		
serpyllifolia L.	x		
Plantago lanceolata L.	0		
major L.	0		
rugelii Dec.	0		
Cephalanthus occidentalis L.	0	0	
Galium asprellum Michx.	0		
trifidum L.	0		
triflorum Michx.	0		0
Houstonia cærulea L.	0	0	0
Mitchella repens L.	0		
Diervilla Lonicera Mill.	0		
Linnæa borealis L.	0	0	0
Lonicera canadensis Marsh.	0		0
cærulea L.		x	
Sambucus canadensis L.	0		
Viburnum acerifolium L.	0		
alnifolium Marsh. (*lantanoides*).	0		
cassinoides L.	0		
dentatum L.	0		
Echinocystis lobata T. & G.	0		
Achillæa Millefolium L.	0		

	Ox.	N.	Ot.
Ambrosia artemisiæfolia L.	0		
Anaphalis margaritacea B. & H.	0		
Antennaria canadensis Greene.	0		x
parlinii arnoglossa Fernald.	0		
Anthemis Cotula DC.	0	0	0
Arctium Lappa L.	0		
Aster acuminatus Michx.	0		
cordifolius L.	0		
linariifolius L.	0		
puniceus L.	0		
umbellatus Mill.	0		
undulatus L.	0		
Chrysanthemum leucanthemum subpinnatifidum Fernald.	0	0	0
Cnicus arvensis. Hoffm.	0		
Erigeron annuus Pers.	0		
bellidifolius Muhl.	0		
strigosus Muhl.	0		
Eupatorium perfoliatum L.	0		0
purpureum L.		0	
Gnaphalium polycephalum Michx.	0		
uliginosum L.	0		
Hieracium aurantiacum L.	0		
scabrum Michx.	0		
Lactuca canadensis L.	0		
leucophæa Gray.	0		
Rudbeckia hirta L.	0		
Senicio robbinsii Oakes.	x		
Solidago cæsia L.	0		
canadensis L.	0		
juncea Ait.	0		
lanceolata L.	0		
latifolia L.			0
nemoralis Ait.	0		
rugosa Mill.	0		
Taraxacum officinale Weber.	0		
Xanthium canadense Mill.	x		

The following plants, not mentioned in the above list, were collected in the town of Casco:

Woodwardia virginica Smith.
Polygonum amphibium Hartwrightii Bissell.
Arceuthobium pusillum Peck.
Antennaria neodioica Greene.

CUMBERLAND CENTER, MAINE.

BULLETIN

OF THE

JOSSELYN BOTANICAL SOCIETY

OF MAINE

NUMBER 2

ISSUED OCTOBER 30, 1908

LIBRARY OF THE GRAY HERBARIUM
HARVARD UNIVERSITY.
THE GIFT OF
C. H. Knowlton.

PORTLAND, ME.:
MARKS PRINTING HOUSE.
1908.

BULLETIN

OF THE

JOSSELYN BOTANICAL SOCIETY

OF MAINE

NUMBER 2

ISSUED OCTOBER 30, 1908

PORTLAND, ME.:
MARKS PRINTING HOUSE.
1908.

Josselyn Botanical Society of Maine.

Fourteenth Annual Meeting.

The headquarters of the Society at its fourteenth annual meeting were at the Stanley House, at Manset, on the south shore of Mount Desert Island. The committee were not unmindful of the fact that Mount Desert had been very thoroughly explored by botanists, but it was thought that many interesting plants might be seen, and possibly some new species found. In this the members were not disappointed, as the appended list will show. The arrangements, carefully made by Mr. O. W. Knight, as chairman of the committee, proved to be satisfactory, both as to entertainment and as to plans for excursions. Some of the members arrived on Monday, August 3rd, and others on Tuesday, August 4th, in the afternoon.

The first session was held at the Stanley House, Tuesday, August 4th, at 9 P. M., the President, Dr. Dana W. Fellows, in the chair. Eight members and four guests were present, viz.: Miss Anna Barnes, Houlton; Mr. Edward B. Chamberlain, Cumberland Center; Miss Louise H. Coburn, Skowhegan; Dr. Dana W. Fellows, Portland; Mr. Ora W. Knight, Bangor; Miss Nellie F. Mansfield, Portland; Mr. F. Seringhaus, New York City; Mr. Albert R. Stubbs, Portland. The guests: Mr. C. H. Bissell, Southington, Conn.; Miss Lucretia Packard, Houlton; Mrs. Ora W. Knight, Bangor; Miss Elsa H. Seringhaus, New York City.

In the absence of the Secretary, the President appointed Mr. Chamberlain as Secretary *pro tem.*, to serve for all the sessions of the meeting. The minutes of the last meeting were read and approved.

The following reports were made by the standing committees of the Society:

Arrangements—The chairman, Mr. Knight, gave a short outline of the proposed excursions that had been planned for the Society during its stay on Mt. Desert, including trips to the Cranberry Islands, to Sea Wall, and to Sargent Mountain, weather permitting.

Plant Distribution—Mr. Knight made an informal report for the committee, stating that there was a manuscript list of the flora of Maine in his possession, which comprised all the reported localities in the recent publications, and in the collections that he had seen. This, he said, could be issued at short notice.

Plant Lore—No report.

Bryophytes—A report covering the work of the past year was read by Mr. Chamberlain, who also spoke of the notice received too late for the report, that the type locality for *Sphagnum Faxoni*, Warnst., was on the island.

Algæ—No report.

Fungi—In the absence of the chairman, the report appended herewith was read by Mr. Chamberlain.

Plant List—The Publication Committee reported verbally that it had not seemed possible to take any definite steps as yet towards the publication of a revised list of Maine plants.

Restoration of the Old Records—The chairman, Dr. Fellows, reported that a large amount of material had been collected, but that the committee would prefer to have more time before making a final report.

The report of the curator of the Portland Natural History Society showed that there had been the following specimens deposited on account of the Josselyn Society since the last meeting:

Mr. J. C. Parlin, 225 sheets, Berwick, Canton and Brownfield.

Mr. Edward B. Chamberlain, 155 sheets, Cumberland, Oxford and York Counties.

Mr. Ralph C. Bean, 43 sheets, vicinity of Clinton.

Mr. C. H. Knowlton, 10 sheets, Franklin and Washington Counties.

Mr. A. R. Stubbs, numerous rare specimens from the vicinity of Portland.

Mr. H. K. Morrell, 2 sheets, Gardiner.

The report of the Treasurer was read and approved.

On motion, voted: That the reports of the standing committees be accepted.

On motion, voted: That the committee on the restoration of the old records be continued for one year.

The names of Miss Elsa Seringhaus, of New York City, Mrs. Ora W. Knight, of Bangor, Mr. F. N. Billings, of Bangor, and Mr. S. A. Lurvey, of Southwest Harbor, were proposed for membership. On motion, voted: That Miss Mansfield be instructed to cast the ballot of the Society for the persons mentioned. At the close of the balloting the President announced that Miss Seringhaus, Mrs. Knight, Mr. Billings and Mr. Lurvey were unanimously elected members of the Society.

On motion, voted: That the President appoint a Nominating Committee. The President appointed Messrs. Chamberlain and Stubbs.

On motion, voted: That the President appoint a committee to take charge of the preparation of the list of the plants seen or collected at the meeting. The President appointed Messrs. Knight and Chamberlain and Miss Coburn as the members of this committee.

On motion, adjourned until 8.00 P. M., August 5th.

Wednesday morning, August 5th, the members went by motor boat to Great Cranberry Island for an all-day trip, with large collecting boxes and a large lunch basket. The following are some of the noteworthy plants that were collected on this island: *Rubus Chamæmorus*, L., *Aspidium spinulosum* (O. F. M.), Sw., var. *dilatatum* (Hoffm.), Hook., forma *anadenium*, Robinson, *Scheuchzeria palustris*, L., *Polygonum ramosissimum*, Michx., forma *atlanticum*, Robinson. A fruitless search was made for *Montia fontana*, L.

Wednesday evening, August 5th, the second business meeting was held. The Committee of Arrangements reported that a trip to Sea Wall had been planned for the following day.

The President announced that an amended report had been received from the Treasurer, which he read. He stated that the Treasurer requested that the former report be set aside.

On motion, voted: That the second report of the Treasurer be accepted, and that the first report be erased from the records.

Discussion of the collections of the day followed, the members being urged to secure as much material as possible for the published lists.

On motion, adjourned until 8.00 P. M., August 6th.

Thursday, August 6th, the morning was devoted to short walks in the vicinity of Manset, one party going as far as Sea Wall. *Veronica longifolia*, L., was collected by the roadside near Manset. *Euphrasia americana*, Wettst., var. *canadensis*, Robinson, is very abundant in this vicinity.

In the afternoon a buckboard ride was taken across the island to Bass Harbor and back by way of Sea Wall. *Lycopodium annotinum*, L., var. *pungens*, Spreng., was found in the Great Heath, and *Lycopodium inundatum*, L., in a roadside ditch. A large number of the ferns of the island were collected along the shore of Southwest Harbor and on the Bass Harbor road. A dense fog prevailed during the day.

In the evening the third business session was held at the Stanley House.

The Committee on Nomination reported as follows:

President—Mr. Ora W. Knight, of Bangor.

Vice-Presidents—Mr. A. H. Norton, of Portland; Miss Kate Furbish, of Brunswick; Miss Louise H. Coburn, of Skowhegan.

Secretary—Mr. Edward B. Chamberlain, of Cumberland Center.

Treasurer—Mr. C. H. Knowlton, of Boston, Mass.

The committee also recommended that the President, *ex-officio*, be a member of the Committee of Arrangements, and that he be authorized to appoint such members to assist him as may be necessary.

The Committee also recommended that the following standing committees be continued for one year.

Plant Distribution—Mr. M. L. Fernald, Mr. O. W. Knight, Mr. C. H. Knowlton, Mr. A. H. Norton, Miss Louise H. Coburn.

Plant Lore—Mrs. M. P. Salsman, Mr. H. K. Morrell, Mrs. H. K. Morrell.

Bryophytes—Prof. J. F. Collins, Mr. Edward B. Chamberlain.

Algæ—Mr. F. S. Collins.

Fungi—Mr. P. L. Ricker.

On motion, voted: That the report of the Nominating Committee be accepted.

On motion, voted: That Miss Mansfield be empowered to cast the ballot of the Society for the officers as reported.

On balloting, the officers as read were declared to be unanimously elected.

Discussion followed as to the place of the next meeting. Mr. Chamberlain spoke of the advantages to be had in the holding of the next meeting either in or near Portland. Dr. Fellows advised that the meeting be held at Peak's Island. Mr. Chamberlain also spoke of the excursions possible in this region, and offered to serve as a guide to the Society. Dr. Fellows and Mr. Stubbs also spoke in favor of Portland, and offered their services as guides or on the committee of arrangements. There was much favorable comment on the selection of Portland from the members present.

A request for the expression of preference as to the time of meeting resulted in a decided preference for the early part of July.

The President appointed the following Committee on Resolutions: Mr. Chamberlain, Mr. Knight, Miss Coburn.

On motion, adjourned until 8.00 P. M., August 7th.

Friday, August 7th, weather foggy and wet. At work "around home" in the morning. At eleven o'clock the members boarded the steamer for Seal Harbor, and from this place they were conveyed by carriages to the Jordan Pond House, where an excellent dinner was served, after which one party ascended Sargent Mountain and another party climbed to the top of Jordan Mountain in fog and rain. On Sargent Mountain were found *Potentilla fruticosa*, L., *Arenaria grœnlandica*, Spreng., etc. (See list.) On the rocky hills along Jordan Brook *Polypodium vulgare*, L., and *Aspidium marginale* (L.), Sw., were abundant, and here, also, was the only plant of *Polystichum achrostichoides* (Michx.), Schott., seen on the island. *Hudsonia ericoides*, L., was seen in abundance on all the mountains.

A business meeting was held at 8.00 P. M., at the Stanley House. The President was in the chair; ten members and one guest were present.

Miss Coburn moved that a vote expressing the thanks and appreciation of the Society be extended to the retiring President, Dr. Dana W. Fellows, for his efforts in behalf of the Society. The President-elect having taken the chair, the motion of Miss Coburn was carried unanimously.

The President, having resumed the chair, made a short speech of acknowledgment of the motion.

Miss Barnes spoke of the advisability of sending a letter of greeting and remembrance to Miss Kate Furbish. On motion, voted: That Miss Mansfield be authorized to send such letter.

On motion, voted: That Miss Mansfield be further authorized to convey the good wishes of the Society to Miss Clark, of Ellsworth.

The names of Miss Lucretia Packard, of Houlton, and of Miss Margaret E. Fox were proposed for membership. At the close of the balloting, it was announced that the above persons were unanimously elected.

The Committee on Resolutions reported as per the copy appended to the minutes, and the report was accepted.

General discussion of the collections of the day followed.

On motion, adjourned, *sine die*.

EDWARD B. CHAMBERLAIN,
Secretary pro tem.

Saturday, August 8th. Many of the members left today for home, but a few that remained to see the sun were rewarded by a clear and beautiful day for a motor boat trip to Somes' Sound and the ascent of Flying Mountain and Robinson Mountain. On the former *Woodsia ilvensis* (L.), R. Br., and *Selaginella rupestris*, Spreng., were found in great abundance. Robinson Mountain afforded a magnificent view of the island and an abundance of blueberries.

Report of the Treasurer.

C. H. KNOWLTON, *Treasurer*, in account with the JOSSELYN BOTANICAL SOCIETY OF MAINE.

RECEIPTS.

Cash on deposit per last report	$86.30	
Cash on hand per last report	10.74	
Received from dues of members	25.00	
Received from dividends	7.70	
		$129.74

EXPENDITURES.

For meeting 1907	$ 9.04	
For "Bulletin"	42.05	
Dues, New England Federation	1.00	
Treasurer's notices	1.00	
Postage	1.67	
	$54.76	
Cash on deposit	70.10	
Cash on hand	4.88	
		$129.74

C. H. KNOWLTON,
Treasurer.

Boston, Mass., August 1, 1908.

Report of the Committee on Fungi.

To the Josselyn Botanical Society:

The Committee on Fungi has made quite a number of additions to the fungus flora of Maine since 1905, but the work has been necessarily slow on account of the limited time available for collecting in Maine, and the lack of members interested in fungi to supply the committee with specimens for identification.

Since the appearance of the preliminary list of 1,136 species, four papers relating entirely to Maine fungi have appeared. These, together with miscellaneous records culled from several of the larger public and private herbaria, will bring the list at present to over 1,500 species. The committee will be glad to name fungi for those interested, with the exception of the Agarics, which can rarely be determined except when perfectly fresh.

P. L. RICKER,
Committee.

Washington, D. C., August 1, 1908.

Report of the Committee on Bryophytes.

The Committee on Bryophytes begs leave to submit the following report:

For various reasons there has been but little material relating to the Bryophytes of Maine published during the past year. The following papers have appeared since the last report, although certain of the species there recorded were included in the report for last year.

E. B. Chamberlain: *Catharinæa Macmillani.* Rhod. 9: 98. A complete description and plate of the species from material collected by Miss Alice L. Crockett, in Camden, Me.

J. F. Collins: Mosses from Aroostook County. Rhod. 10: 37. Notes, with distribution, upon a collection of four mosses, one hepatic, and one sphagnum made by Prof. and Mrs. Fernald at Crystal, Maine.

J. F. Collins: Preliminary Lists of New England Plants—XIX. Addenda. Rhod. 10: 71. Contains notes upon certain species of *Polytrichaceæ* already reported from Maine.

A. L. Crockett: *Catharinæa crispa* in Maine. Bryol. 10: 74.

E. M. Dunham: *Polytrichum gracile* in Maine. Bryol. 10: 75. Both these papers merely repeat records already reported in "Rhodora."

E. B. Chamberlain: Offerings. Bryol. 10: 76; and 11: 75.

A. L. Crockett: Offerings. Bryol. 11: 17.

These papers merely offer species collected in Maine, to be distributed to the members of the Sullivant Moss Society.

It is with much regret that the committee announces the death of one of its members during the past year. Mrs. M. L. Stevens, of Cambridge, Mass., had been a member of the Josselyn Botanical Society almost from the first, and for the greater part of that time of the Committee on Bryophytes, in whose work she took an active interest. A brief notice of her death has appeared in the "Bryologist" 10: 106. The Committee hopes that the Society will adopt suitable resolutions in the matter.

Respectfully submitted,

J. F. COLLINS, } *Committee on*
E. B. CHAMBERLAIN, } *Bryophytes.*

August 1, 1908.

Resolutions.

In behalf of the Josselyn Botanical Society of Maine, we wish to put on record our sorrow at the loss of two valued members, Mrs. M. L. Stevens, who has been at such pains to come to us at past meetings and who for a number of years has belonged to our Committee on Bryophytes, and Prof. L. A. Lee, by whose death the State of Maine has lost a leader in scientific work, and our Society a helpful friend and member. We wish also to express our sympathy with Miss Clark in her affliction by the death of her father, which prevented her from attending our meeting.

We are indebted to Mr. Knight for the plans and arrangements for a most successful and delightful meeting, and we express our appreciation of the courteous entertainment of Mrs. Stanley.

LOUISE H. COBURN,
ORA WILLIS KNIGHT,
EDWARD B. CHAMBERLAIN, } *Committee on Resolutions.*

Josselyn Botanical Society, 1908–1909.

Miss Anna Barnes,	Houlton, Me.
Mrs. C. O. Barrows,	30 Exchange St., Portland, Me.
Mr. Ralph C. Bean,	Clinton, Me.
Mr. Francis M. Billings,	330 Essex St., Bangor, Me.
Mrs. M. C. Brainerd,	240 Madison Ave., Skowhegan, Me.
Miss C. C. Brainerd,	240 Madison Ave., Skowhegan, Me.
Mr. W. H. Brownson,	85 Market St., Portland, Me.
Miss Sarah W. Brooks,	Concord, Mass.
Mr. Edward B. Chamberlain,	38 West 59th St., New York City.
Miss Lizzie Churchill,	Greenwich, Conn.
Miss Mary A. Clark,	Ellsworth, Me.
Miss Louise H. Coburn,	Skowhegan, Me.
Prof. J. F. Collins,	468 Hope St., Providence, R. I.
Rev. I. B. Conley,	McKinley, Me.
Miss M. I. Corning,	East Hartford, Conn.
Prof. M. B. Cummings,	Orono, Me.
Miss F. L. Drummond,	Waterville, Me.
Mrs. A. B. C. Dutton,	20 Berkeley St., Cambridge, Mass.
Miss L. O. Eaton,	R. F. D. 32, Mt. Vernon, Me.
Miss Alice I. Evans,	44 North St., Portland, Me.
Miss M. F. Farnum,	Pacific University, Forest Grove, Ore.
Dr. D. W. Fellows,	17 Hill St., Portland, Me.
Prof. M. L. Fernald,	Gray Herbarium, Cambridge, Me.
Mrs. H. B. Fogler,	Skowhegan, Me.
Miss Kate Furbish,	Brunswick, Me.
Miss S. M. Hacker,	Westbrook, Me.
Miss A. K. Hasty,	53 Spruce St., Portland, Me.
Prof. G. U. Hay,	Box 403, St. John, N. B.
Mrs. C. W. Keyes,	Farmington, Me.
Mr. C. H. Knowlton,	120 Boylston St., Boston, Mass.
Mrs. C. H. Knowlton,	120 Boylston St., Boston, Mass.
Mr. Ora W. Knight,	84 Forest Ave., Bangor, Me.
Mrs. Ora W. Knight,	84 Forest Ave., Bangor, Me.
Rev. E. L. Krumreig,	East Machias, Me.
Mr. Samuel A. Lurvey,	Box 134, Southwest Harbor, Me.
Miss Nellie F. Mansfield,	Box 743, Portland, Me.
Miss Helen H. Marrett,	Standish, Me.
Miss F. Helen Mayo,	South Limington, Me.

Mrs. E. G. Meader,	84 Elm St., Waterville, Me.
Mr. H. K. Morrell,	Gardiner, Me.
Mrs. H. K. Morrell,	Gardiner, Me.
Miss E. H. Moody,	South Limington, Me.
Miss Dora H. Moulton,	9 Hill St., Portland, Me.
Miss Jane B. Morse,	301 Spring St., Portland, Me.
Miss Harriet A. Nye,	Fairfield Center, Me.
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Mr. Albert R. Stubbs,	207 Spring St., Portland, Me.
Mr. Frank Sweetsir,	Cumberland Center, Me.
Miss Lena Willis,	Naples, Me.

Plant List.

The following list is a compilation from field notes kept by Mr. Chamberlain, Miss Coburn, Dr. Fellows and Mr. Knight during the excursions of the Society. The determinations in most cases are upon the authority of the person reporting the plant. The sign (!) denotes that a specimen was preserved; the initials refer to the collector, or person reporting the plant, viz., C., Mr. Chamberlain, F., Dr. Fellows, K., Mr. Knight. The list of Pteridophytes is wholly the work of Dr. Fellows; Mr. Knight has furnished the list of Grasses, Sedges and Junci. This list is believed to contain no species whose occurrence upon Mt. Desert Island has not already been noted. In the case of certain genera whose species have undergone segregation since the appearance of the Mt. Desert flora in 1894, this list may contain the first printed report, but this is not the first collection. The term "common" refers, of course, merely to that part of the island visited. This list was prepared for the press before the publication of Gray's Manual of Botany, seventh edition.

Polypodium vulgare, L. Sargent Mountain, Jordan Brook.
Phegopteris polypodioides (L.), Fée. Manset.
  dryopteris (L.), Fée. Manset.
Pteris aquilina, L. Mt. Desert, Great Cranberry Island.
Asplenium filix-femina (L.), Bernh. Abundant in several forms.
Polystichum acrostichoides (Michx.), Schott. Jordan Brook.
Aspidium thelypteris (L.), Sw. Manset, Great Cranberry Island.
  simulatum, Davenp. Manset.
  noveboracense (L.), Sw. Manset, Great Cranberry Island.
  marginale (L.), Sw. Jordan Brook, Jordan Mountain.
  Boottii, Tuckerm. Manset.
  cristatum (L.), Sw. Great Cranberry Island.
  spinulosum (O. F. M.), Sw. Great Cranberry Island. Var. intermedium (Muhl.), D. C. E.; var. dilatatum (Hoffm.), Hook., forma anadenium, B. L. R. Great Cranberry Island.
Woodsia ilvensis (L.), R. Br. Flying Mountain.
Dicksonia punctilobula (Michx.), Gray. Abundant.
Onoclea sensibilis, L. Abundant.
Osmunda regalis, L. Manset, Somes' Sound.
  Claytoniana, L. Manset.
  cinnamomea, L. Manset.

Equisetum arvense, L. Abundant.
 sylvaticum, L. Abundant.
Lycopodium lucidulum, Michx. Manset.
 inundatum, L. Roadside between Bass Harbor and Sea Wall.
 obscurum, L. Manset, Sargent Mountain.
 annotinum, L., var. pungens, Spreng. Great Heath.
 clavatum, L. Mt. Desert, Great Cranberry Island. Var. monostachyon, Hook. Sargent Mountain.
 complanatum, L., var. flabelliforme, Fernald. Great Cranberry Island.
Selaginella rupestris (L.), Spreng. Flying Mountain.
Abies balsamea, Mill. Bass Harbor, Manset, Valley Cove (C.).
Juniperus communis, L., var. canadensis, Loud. Valley Cove, Robinson Mountain (! C.).
 horizontalis, Moench. Sargent Mountain (! K.).
Larix laricina, Koch. Common.
Picea canadensis, BSP. Common.
 mariana, BSP. Great Heath (C.), Manset (K.).
 rubra, Dietr. Fernald Valley, Manset (C.).
Pinus resinosa, Ait. Robinson Mountain (C.).
 rigida, Mill. Robinson Mountain (C), Great Head (! Miss Coburn).
 Strobus, L. Manset, Robinson Mountain (C.).
Thuja occidentalis, L. Common.
Tsuga canadensis, Carr. Manset (K.).
Taxus canadensis, Marsh. Manset (K.).
Typha latifolia, L. Sea Wall (K.).
Potamogeton Nuttallii, Cham. & Schlecht. Bass Harbor marsh (C. & K.).
Ruppia maritima, L. Great Cranberry Island, Manset (! K.).
Scheuchzeria palustris, L. Great Cranberry Island (! C.).
Triglochin maritima, L. Great Cranberry Island (! C.), Manset (! K.).
Zostera marina, L. Somes' Sound (Miss Seringhaus).
Agropyron repens, Beauv. Common.
Agrostis alba, L. Manset, Great Cranberry Island (! K.). Var. maritima, Meyer. Great Cranberry Island (! C.), Manset (! K.). Var. vulgaris, Thurb. Manset (! K.).
 hiemalis, BSP. Great Cranberry Island, Manset (! K.).
 perennans, Tuck. Manset (! K.).
Bromus ciliatus, L. Manset (C. & K.).
Calamagrostis canadensis, Beauv. Common.
Cinna latifolia, Griseb. Manset (! K.).
Danthonia spicata, Beauv. Common.
Deschampsia flexuosa, Trin. Sargent Mountain (! K.).
Elymus mollis, Trin. Great Cranberry Island (! C. & K.).
 virginicus, L. Great Cranberry Island (! F.), Manset (! K.).
Glyceria canadensis, Trin. Great Cranberry Island (! K.).
 grandis, S. Wats. Bass Harbor (! F.).
 laxa, Scribn. Great Cranberry Island (! K.).
 nervata, Trin. Manset (! K.).
Hierochloe odorata, Wahl. Great Cranberry Island (! K.).
Hordeum jubatum, L. Common on the beaches.
Oryzopsis asperifolia, Michx. Jordan Mountain (! K.).
Panicum boreale, Nash. Manset (! K.).
Phleum pratense, L. Common.
Poa annua, L. Common.
 compressa, L. Common.
 nemoralis, L. Manset (! K.).
 triflora, Gilbert (= *P. serotina*, Ehrh.). Manset (! K.).
Puccinellia angustata, Scribn. Manset (! K.).
Spartina glabra, Muhl., var. alterniflora, Merrill. Great Cranberry Island (! K.).
 Michauxiana, Hitchc. (= *S. cynosuroides*, Willd.). Common, Great Cranberry Island (! K.).

Spartina patens, Muhl. Great Cranberry Island (! K.).
Sporobolus uniflorus, Scribn. & Merrill. Bass Harbor marsh (! K.).
Carex arctata, Boott. Manset, Great Cranberry Island (! K.).
  Bebbii, Olney. Manset (! K.).
  brunnescens, Poir. Manset (!), Sargent Mountain (K.).
  canescens, L. Manset (! K.). Var. disjuncta, Fernald. Great Cranberry Island and road from Manset to Bass Harbor (! K.).
  conoidea, Schkuhr. Bass Harbor marsh (! C. & K.).
  Crawfordii, Fernald. Great Cranberry Island (!), Manset (K.).
  crinita, Lam. Manset (!), Bass Harbor road (K.). Var. gynandra, Schwein. & Torr. Manset (! K.).
  debilis, Michx., var. Rudgei, Bailey. Manset (! K.).
  Deweyana, Schwein. Manset (! K.), Sargent Mountain (C. & K.).
  exilis, Dewey. Great Heath (! S. & K.).
  flava, L. Manset (! K.). Var. rectirostra, Gaud. Manset (! K.).
  folliculata, L. Manset (!), Great Cranberry Island (!), Bass Harbor road (K.), Sea Wall (C.).
  Goodenovii, Gay. Two very distinct forms: Tall and rather slender, Bass Harbor road (! C. & K.), Great Cranberry Island; small, dark-colored form, Sea Wall (! K.).
  gracillima, Schwein. Manset (! K.).
  hormathodes, Fernald (= *C. straminea*, Willd., var. *aperta*, Boott.). Great Cranberry Island (!), Manset (K.). Var. invisa, Fernald. Manset (! K.).
  intumescens, Rudge, var. Fernaldii, Bailey. Manset (! K.).
  leptalea, Wahl. Manset (! F.).
  lurida, Wahl. Manset (! K.). Common (C.). Var. gracilis, Bailey. Manset (! K.).
  maritima, O. F. Mueller. Great Cranberry Island, Manset (! K.).
  Oederi, Ehrh., var. pumila, Fernald. Manset (! K.), Great Cranberry Island.
  pallescens, L. Common (! K.).
  pauciflora, Lightf. Great Heath (! C. & K.).
  paupercula, Michx., var. pallens, Fernald. Great Cranberry Island (!), Great Heath (! C. & K.).
  rostrata, Stokes, var. utriculata, Bailey. Bass Harbor road (! K.).
  scoparia, Schkuhr. Great Cranberry Island, Manset (! K.). Var. condensa, Fernald. Manset (! K.).
  stellulata, Good., var. angustata, Carey. Manset (! K.). Var. excelsior, Fernald. Manset (!), Great Cranberry Island (! K.).
  sterilis, Willd. (*C. atlantica*, Bailey). Great Heath (! S., C. & K.).
  stricta, Lam. Manset (! K.). Var. decora, Bailey. Bass Harbor marsh (! K.).
  tribuloides, Wahl. Manset (! K.). Var. reducta, Bailey. Manset (! K.).
  trisperma, Dewey. Great Cranberry Island (!), Manset (!), Great Heath (! K.).
  vesicaria, L., var. monile, Fernald. Sea Wall swamp (!), Manset, Great Cranberry Island (K.).
Eleocharis palustris, R. & S., var. glaucescens, Gray. Manset (!), Great Cranberry (!), Sea Wall (! K.).
  tenuis, Schultz. Manset (! K.).
Eriophorum angustifolium, Roth., var. majus, Schultz. Sea Wall swamp (! K.).
  callitrix, Cham. Manset (!), Great Heath (K.).
  virginicum L. Valley Cove (! C.), Great Cranberry Island (K.), Great Heath (! K.).
Rhynchospora alba, Vahl. Common (! C., K. & Miss Coburn).
  fusca, Ait. f. Manset (! Tilton, Stubbs & K.), Great Cranberry Island (! K.), Sea Wall (K.).
Scirpus atrocinctus, Fernald. Manset (! K.).
  cæspitosus, L. Great Cranberry Island (C. & K.).

Scirpus campestris, Britton, var. paludosus, Fernald. Bass Harbor marsh (! C. & K.), Manset (! K.).
cyperinus, Kunth. Manset (! K.).
georgianus, Harper. Manset (! K.).
nanus, Spreng. Manset (!), Great Cranberry Island, Bar Harbor (! K.).
occidentalis, Chase. Bar Harbor (! K.).
rubrotinctus, Fernald. Manset (! K.).
validus, Vahl. Sea Wall (! C. & K.), Great Cranberry Island (! K.).
Calla palustris, L. Great Cranberry Island (C.).
Symplocarpus fœtidus, Nutt. Great Cranberry Island, Sea Wall (C.), Manset (K.).
Eriocaulon septangulare, With. Sargent Pond (C. & K.).
Pontederia cordata, L. Bass Harbor marsh (K.).
Juncus acuminatus, Michx. Manset (! K.).
articulatus, L. Manset (! K.).
balticus, Deth. Great Cranberry Island (! K.), Manset (! K.).
brevicaudatus, Fernald. Great Cranberry Island, Manset (! K.).
bufonius, L. Manset (! K.).
canadensis, J. Gay. Manset (! K.).
effusus, L. Common, Manset (! K.).
Gerardi, Loisel. Manset, Great Cranberry Island (! K.).
Greenii, Oakes & Tuck. Manset (! K.).
militaris, Bigel. Sargent Pond (C.).
pelocarpus, E. Meyer. Manset (! K.).
tenuis, Willd. Common, Manset (! K.). Var. anthelatus, Wiegand. Manset (! K.).
Luzula campestris, DC., var. multiflora, Celak. Manset (! K.).
saltuensis, Fernald. Manset (! K.).
Clintonia borealis, Raf. Common.
Hemerocallis fulva, L. Roadside between Manset and Sea Wall (C. & K.).
Maianthemum canadense, Desf. Common.
Medeola virginiana, L. Manset (K.).
Smilacina racemosa, Desf. Jordan Bluffs (C. & K.).
trifolia, Desf. Great Cranberry Island (! C.), Great Heath (K.).
Streptopus amplexifolius, DC. Man-o'-War Brook (T.).
roseus, Michx. Great Cranberry Island (F. & C.), Jordan Mountain (K.).
Iris versicolor, L. Manset, Great Cranberry Island (C. & K.).
Sisyrinchium angustifolium, Mill. Common.
Arethusa bulbosa, L. Great Heath (! K.).
Calopogon pulchellus, R. Br. Manset (! F.).
Cyprepedium acaule, Ait. Manset (K.).
Habenaria tridentata, Hook. Great Cranberry Island (! Mrs. Knight), Bass Harbor (! Miss Coburn).
Liparis Loeselii, Rich. Manset (K.).
Microstylis ophioglossoides, Nutt. Great Cranberry Island (! Miss Coburn & Mrs. Knight).
Spiranthes cernua, Rich., var. ochroleuca, Ames. Great Cranberry Island (Miss Packard, det. Knight).
gracilis, Beck. Great Cranberry Island (! Mrs. Knight & Miss Coburn), Valley Cove (C.), Manset (Miss Coburn).
Romanzoffiana, Cham. Great Cranberry Island (! Mrs. Knight).
Salix alba, L., var. vitellina, Koch. Manset (K.).
discolor, Muhl. Common.
humilis, Marsh. Common.
lucida, Muhl. Jordan Pond, Manset (K.).
petiolaris, Smith. Manset (K.).
rostrata, Richardson. Common.
Populus balsamifera, L. Manset (K.).
grandidentata, Michx. Flying Mountain (C.).

Populus tremuloides, Michx. Common.
Myrica asplenifolia, Endl. Manset, Great Cranberry Island (C. & K.), Bass Harbor (Miss Coburn).
carolinensis, Mill. Manset (K.), Great Cranberry Island (! Miss Coburn), Robinson Mountain (! C.).
Gale, L. Sea Wall, Great Cranberry Island (C.), Manset (K.).
Alnus incana, Willd. Common.
mollis, Fernald. Common.
Betula alba, L. Manset (! C.).
lutea, Michx., f. Common.
populifolia, Marsh. Common.
Corylus rostrata, Ait. Jordan Mountain (C. & K.).
Fagus grandifolia, Ehrh. (*F. ferruginea*, Ait.). Common.
Quercus ilicifolia, Wang. Robinson Mountain (C.).
rubra, L. Flying Mountain (C.), Manset (K.).
Polygonum amphibium, L., var. Hartwrightii, Bissell. Manset (Bissell).
aviculare, L. Sea Wall (! C.).
Convolvulus, L. Great Cranberry Islands (C.).
Persicaria, L. Manset (! C.).
ramosissimum, Michx., forma atlanticum, Robinson. Manset (!), Great Cranberry Island (!), Sea Wall (! C.).
sagittatum, L. Common.
Rumex Acetosella, L. Common.
Brittanica, L. Bass Harbor marsh (C.).
crispus, L. Manset (C. & K.).
pallidus, Bigel (RHOD. 10: 19). Manset (! C.).
Atriplex patulum, L., var. hastatum, Gray. Common.
Chenopodium album, L. Common.
Salicornia herbacea, L. Great Cranberry Island, Manset (C. & K).
Suaeda maritima, Dum. Great Cranberry Island (! C.), Manset (K.).
Arenaria grœnlandica, Spreng. Robinson and Sargent Mountains (! C.).
lateriflora, L. Common.
Cerastium arvense, L. Great Cranberry Island (! C. & K.).
vulgatum, L. Common.
Spergula arvensis, L. Common at Manset (C.).
Spergularia borealis, Robinson. Great Cranberry Island (! C.).
rubra, J. & C. Presl. Common.
salina, J. & C. Presl. Manset (! K.).
Stellaria graminea, L. Manset (! C.).
media, Smith. Common.
Castalia odorata, Woodv., Wood. Sargent Pond (C. & K.).
Nymphæa advena, Ait. Sargent Pond (C. & K.).
Coptis trifolia, Salisb. Common.
Ranunculus acris, L., var. Steveni, Lange. Common at Manset (C., K. & F.).
Cymbalaria, Pursh. Great Cranberry Island, Manset (K.).
repens, L. Manset (C.).
Berberis vulgaris, L. Flying Mountain (Miss Seringhaus).
Corydalis glauca, Pursh. Seal Harbor (C.).
Brassica campestre, L. Manset (C. & K.).
nigra, Koch. Manset (! K.).
Sinapistrum, Boiss. Manset (C. & K.).
Capsella Bursa-pastoris, Moench. Common.
Cakile americana, Nutt. Common.
Cardamine pennsylvanica, Muhl. Valley Cove (! C.).
Raphanus Raphanistrum, L. Sea Wall (C.).
Sarracenia purpurea, L. Great Cranberry Island, Great Heath (C. & K.).
Drosera intermedia, Hayne. Great Cranberry Island (Miss Coburn), Sea Wall (C.), Manset (! K.), Bass Harbor (! Miss Coburn).
rotundifolia, L. Great Heath (C.), Manset (! K.).
Sedum Telephium, L. Near Manset (C. & K.).
Ribes oxyacanthoides, L. Sea Wall (! C. & K.).

Ribes prostratum, L'Her. Common.
Saxifraga virginiensis, Michx. Flying Mountain (C. & F.).
Hamamelis virginiana, L. Jordan Mountain (C. & K.).
Amelanchier canadensis, Medic. Common.
Dalibarda repens, L. Jordan Pond (K.).
Fragaria americana, Britt. Jordan Bluffs (K.).
virginiana, Mill. Common.
Potentilla argentea, L. Common.
anserina, L. Common on beaches.
fruticosa, L. Jordan Bluffs (! C. & K.).
monspeliensis, L. Common.
simplex, Michx. Manset (! C.).
tridentata, Ait. Common.
Prunus pennsylvanica, L., f. Manset (C.).
virginiana, L. Great Cranberry Island (C.).
Pyrus americana, DC. Bass Harbor road (! K.).
arbutifolia, L. f., var. melanocarpa, Hook. Manset, Jordan Mountain (! C.).
Rosa carolina, L. Man-o'-War Brook (F.).
lucida, Ehrh. Great Cranberry Island (! Miss Coburn).
nitida, Willd. Common.
Rubus Chamæmorus, L. Great Cranberry Island (! F., K. & S.).
hispidus, L. Manset (! C. & K.).
setosus, Bigel. Manset (! K.).
strigosus, Michx. A very luxuriant form. Sea Wall (! C. & K.).
triflorus, Rich. Manset (C.).
Spiræa salicifolia, L., var. latifolia, Ait. Manset (! C.).
tomentosa, L. Common.
Lathyrus maritimus, Bigel. Common.
Medicago lupulina, L. Sea Wall (! C.).
Trifolium agrarium, L. Manset, Sea Wall (C.), Great Cranberry Island (Miss Coburn).
pratense, L. Common.
procumbens, L. Common (! C.).
repens, L. Common.
Vicia sativa, L. Sea Wall (! C.).
tetrasperma, L. Sea Wall (! C.).
Oxalis Acetosella, L. Manset (C.).
cymosa, Small. Manset (! K.).
Euphorbia Cyparissias, L. Manset (! C.).
Callitriche palustris, L. Bass Harbor marsh (C. &. K.).
Empetrum nigrum, L. Great Cranberry Island, Great Heath (! C.).
Ilex verticillata, Gray. Jordan Mountain (!), Manset (! C.), Great Cranberry Island (! Miss Coburn).
Nemopanthes fasicularis, Raf. Common.
Acer pennsylvanicum, L. Jordan Mountain (C. & K.).
rubrum, L. Jordan Mountain (C. & K.).
spicatum, Lam. Manset (C.), Jordan Mountain (K.).
Impatiens biflora, Walt. Sea Wall (C.).
Malva rotundifolia, L. Manset (C.).
Hypericum boreale, Bickn. Manset (! C.).
canadense, L. Common.
majus, Britt. Manset (! C.).
nudicaule, Walt. Sargent Mountain (! K.), Fernald Valley (! C.).
virginicum, L. Great Cranberry Island (Miss Coburn), Manset (K.).
Hudsonia ericoides, L. Jordan Mountain (! F.), Robinson Mountain (C.).
Viola lanceolata, L. Bass Harbor marsh (! K. & Miss Coburn).
pallens, Brain. Bass Harbor marsh (! K.).
primulifolia, L. Bass Harbor marsh (! Miss Coburn), Manset (K.).
septentrionalis, Greene. Manset (!), Great Cranberry Island (K.).
Epilobium adenocaulon, Haussk. Great Cranberry Island (! C.).
angustifolium, L. Great Cranberry Island (C.).

Epilobium lineare, Muhl (?). Great Cranberry Island (C.).
strictum, Muhl. Great Cranberry Island (! C.).
Œnothera biennis, L. Common.
pumila, L. Common.
Aralia hispida, Vent. Seal Harbor (C.).
nudicaulis, L. Jordan Mountain (C.).
Carum Carui, L. Manset (C.).
Heracleum lanatum, Michx. Great Cranberry Island, Sea Wall (C.).
Ligusticum scoticum, L. Manset (! K.).
Cornus canadensis, L. Common.
circinata, L'Her. Jordan Bluffs (! K.).
Arctostaphylos Uva-ursi, Spreng. Robinson Mountain (! C.).
Cassandra calyculata, Don. Sea Wall, Great Heath (C.).
Chiogenes serpyllifolia, Salisb. Bass Harbor (F.).
Chimaphila umbellata, Nutt. Jordan Mountain (C. & K.).
Epigæa repens, L. Jordan Mountain (Miss Coburn).
Gaultheria procumbens, L. Common.
Gaylussacia dumosa, T. G. Great Cranberry Island (! K.).
resinosa, T. G. Manset (C.).
Kalmia angustifolia, L. Common.
glauca, Ait. Great Heath, Great Cranberry Island (! C.), Bass Harbor (! Miss Coburn).
Ledum grœnlandicum, Œder. Great Cranberry Islands (K. & Miss Coburn).
Moneses grandiflora, Salisb. Great Cranberry Island (! Miss Coburn).
Monotropa uniflora, L. Great Cranberry Island (F.), Jordan Mountain (Miss Coburn).
Pyrola americana, Sweet. Jordan Mountain (! Miss Coburn).
Rhododendron Rhodora, Don. Common.
Vaccinium canadense, Kalm. Manset, Sargent Mountain (K.).
macrocarpon, Ait. Manset (C. & K.).
Oxycoccus, L. Great Cranberry Island, Great Heath (C.).
pennsylvanicum, Lam. Manset, Sargent Mountain (K.).
Vitis-idæa, L., var. minor, Lodd. Common.
Lysimachia stricta, Ait. Manset (! C.).
Trientalis americana, Pursh. Common.
Glaux maritima, L., var. obtusifolia, F. Forms approaching the variety. Great Cranberry Island (C.), Manset (K.).
Statice Limonium, L., var. caroliniana, Gray. Common.
Fraxinus americana, L. Manset (C. & K.).
Nymphoides lacunosum, Fernald. Sargent Pond (C. & K.).
Convolvulus sepium, L. Sea Wall (! C.).
Cuscuta Gronovii, Willd. Manset (C.), Great Cranberry Island (! K.).
Echinospermum Lappula, Lehm. Manset (! T.).
Mertensia maritima, Don. Common on beaches.
Galeopsis Tetrahit, L. Common.
Hedeoma pulegioides, Pers. Common.
Leonurus cardiaca, L. Jordan Pond (C.).
Lycopus sinuatus, Ell. Common.
uniflorus, Michx. Common.
Mentha canadensis, L. Great Cranberry Island (! C.), Manset (! K.).
Prunella vulgaris, L. Common.
Scutellaria galericulata, L. Common.
Chelone glabra, L. Manset (C. & K.).
Linaria canadensis, L. Road to Bass Harbor (K.).
vulgaris, L. Great Cranberry Island (Miss Coburn).
Euphrasia americana, Wettst. Great Cranberry Island (! C. & K.). Var. canadensis, Robinson. Manset (!), Sea Wall (! C.).
Melampyrum americanum, Michx. Great Cranberry Island (C. & F.).
Rhinanthus Crista-galli, L. Common.
Veronica longifolia, L. Roadside between Manset and Sea Wall (! F.).
Plantago major, L. Manset (C.)

Plantago decipiens, Barneoud. Sea Wall (! C.).
Galium Aparine, L. Great Cranberry Island (! K.).
  Claytoni, Michx. Bass Harbor marsh (! C.).
  triflorum, Michx. Manset (C.).
Houstonia cærulea, L. Common.
Mitchella repens, L. Jordan Mountain (C. & K.).
Diervilla Lonicera, Mill. Manset (C.).
Linnæa borealis, L. Manset, Jordan Pond (K.).
Lonicera cærulea, L. Great Cranberry Island (Miss Coburn), Manset (K.).
Sambucus pubens, Michx. Manset (C.).
Viburnum cassinoides, L. Common.
  dentatum, L. Seal Harbor (F. & K.).
Campanula rapunculoides, L. Roadside between Manset and Sea Wall (F.).
  rotundifolia, L. Flying Mountain (C.), Jordan Mountain (F.).
  uliginosa, Rydb. Bass Harbor marsh (! F., C. & K.)
Lobelia Dortmanna, L. Sargent Pond (C. & K.).
  inflata, L. Common.
Hieracium scabrum, Michx. Sargent Pond, Manset (K.).
Lactuca canadensis, L. Flying Mountain (C.).
Leontodon autumnalis, L., var. pratensis, Koch. Manset (! C.).
Prenanthes trifoliolata, Fernald, var. nana, Fernald. Manset, Great Cranberry Island (! K.), Sargent Mountain (! C.).
Sonchus asper, Vill. Common.
Achillæa Millefolium, L. Common (! C.).
Anaphalis margaritacea, B., H. Manset (C.).
Anthemis Cotula, DC. Common.
Aster acuminatus, Michx. Manset (C.).
  nemoralis, Ait. Sea Wall (! C.), Great Cranberry Island (! K. & Miss Coburn).
  novi-belgii, L., form approaching var. litoreus, Gray. Great Cranberry Island (! Miss Coburn).
  Radula, Ait. Manset (! C.).
  umbellatus, Mill. Common.
Bidens cernua, L. Sea Wall (C.).
Chrysanthemum Leucanthemum, L., var. subpinnatifidum, Fernald. Common.
Eupatorium perfoliatum, L. Manset.
Gnaphalium uliginosum, L. Common.
Matricaria suaveolens (Pursh.), Buchenau. Common at Manset (! C.).
Rudbeckia hirta, L. Seal Harbor (C.).
Senecio sylvaticus, L. Great Cranberry Island (! C.).
Solidago canadensis, L. Manset (C.).
  juncea, Ait. Valley Cove (C.).
  lanceolata, L. Great Cranberry Island (Miss Coburn).
  nemoralis, Ait. Manset (C. & K.).
  rugosa, Mill. Manset, Great Cranberry Island (Miss Coburn).
  sempervirens, L. Common.

Respectfully submitted,

DANA W. FELLOWS,
CLARENCE H. KNOWLTON, } *Publication Committee.*
EDWARD B. CHAMBERLAIN,

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Josselyn Botanical Society of Maine.

Fifteenth Annual Meeting.

The fifteenth annual meeting of the Society was held at the Peak's Island House, Peak's Island, Maine, from June 29th until July 2nd, with a total attendance of twenty-two, several of the members stopping in Portland. Many arrived Monday, June 28th, but owing to the lateness of the hour when all had assembled, no business session was held until Tuesday afternoon.

On Tuesday morning a walk was taken around the shore at the southerly end of Peak's Island, the following being the more noteworthy plants secured: *Hyoscyamus niger* L., *Aster cordifolius* L., var. *Furbishiae* Fernald, *Ruppia maritima* L., *Arethusa bulbosa* L., *Eriophorum viridi-carinatum* (Engelm.) Fernald, var. *Fellowsii* Fernald (type station), *Veronica agrestis* L., *Carex conoidea* Schkuhr, and *C. muricata* L. The Henbane was especially interesting to most of the members, this being the second known station in the state.

On Tuesday afternoon the first business session was held, with the President, Mr. Ora W. Knight, in the chair and eleven persons present. The minutes of the last meeting were read and approved. The Committee of Arrangements reported upon the excursions planned for the week. The reports of the Committee on Bryophytes and of the Committee on Publication were read and approved. It was voted that the Secretary be instructed to keep on file copies of any publications received, and to send copies of the Josselyn Bulletin to such societies as may desire to exchange.

In consideration of the work of the Portland Herbarium Club, which has in preparation a list of the plants growing within ten miles of the city, it was voted that no plant list be issued in the Bulletin this year.

The President appointed the following Nominating Committee: Mr. A. R. Stubbs, Miss Dora H. Moulton, Miss Lena Willis.

At the close of the business session some members took a short walk along the inner shore of the Island, *Rubus Idaeus* L., and *R. alleghaniensis* Porter, var. *calycosus* Fernald, being the most interesting plants found. In the evening, at 8 P. M., occurred the second session, with twenty-two persons present.

The President introduced the speaker of the evening, Prof. Merritt L. Fernald, of the Gray Herbarium, who addressed the Society on the subject: "The New England Flora of the Future, or Changes in our Flora Due to the Destruction of the Forests." The address was illustrated by specimens of nearly all the species mentioned. At the close of the address, which was greatly enjoyed by all present, Dr. Fellows read a letter from Miss Kate Furbish, conveying her best wishes to the members of the Society and regretting her inability to be present. On motion, voted: That the Secretary be instructed to convey to Miss Furbish the greetings of the Society.

Wednesday morning the party went to Old Orchard Beach by electrics, spending the forenoon in botanizing the beach, sand dunes, and fresh marshes between Old Orchard and Pine Point, a distance of about three miles. The party was fortunate in finding in full bloom the large beds of *Hudsonia tomentosa* Nutt., which cover the sand dunes. At Pine Point dinner was served, leaving nearly two hours for collecting upon the large salt marshes between Pine Point and the railway station. The more interesting plants of the day's collecting from this region were: *Artemisia Stelleriana* Bess., *Potamogeton bupleuroides* Fernald, *Ophioglossum vulgatum* L., *Rumex mexicanus* Meisn., *Lathyrus palustris* L., var. *linearifolius* Ser., *Typha angustifolia* L., *Barbarea verna* (Mill.) Asch., at Old Orchard; *Oxalis stricta* L., at Grand Beach; *Ranunculus scleratus* L., *Glaux maritima* L., and the variety *obtusifolia* Fernald, at Pine Point. Several species of grasses and sedges were collected, but they have not been identified as yet.

On returning to Portland two of the party spent about an hour at the dumps between the Eastern Promenade and the Grand Trunk Depot. Many species of introduced plants were found here, among them being *Chenopodium glaucum* L., *C. leptophyllum* Nutt., *Convolvulus arvensis* L., *Erysimum cheiranthoides* L., and *E. parviflorum* Nutt., *Camelina microcarpa* Andrz., *Neslia paniculata* (L.) Desv., *Conringia orientalis* (L.) Dum., *Lappula echinata* Gilib., *Physalis Virginianat* Mill., *Amaranthus blitoides* Wats., *Artemisia ludoviciana* Nutt.

The evening was spent in the study and comparison of the specimens collected.

The trip to Falmouth Foreside on Thursday occupied only a portion of the day, opportunity being given on the return to visit again the tracks and dumps in the vicinity of the Grand Trunk Railway. At the first point visited, Underwood Spring, a small patch of *Scleranthus annuus* L., a species new to the region, was found, also in the deciduous woods along the shore, *Carex polymorpha* Muhl., *C. virescens* Muhl., *Barbarea verna* (Mill.) Asch., *Thalictrum polygamum* Muhl., var. *hebecarpum* Fernald, and *Panicum Werneri* Scribn. Lunch was eaten in the pavilion at Underwood, after which the party walked to the Falmouth Town Landing. Near here were found *Potentilla recta* L., and *Cynanchum nigrum* (L.) Pers.

A business session was held Thursday evening, with sixteen persons present. The report of the Treasurer was read and accepted. After the acceptance of the report of the Nominating Committee, the following officers were duly elected :

President—Mr. Ora W. Knight, of Bangor.

Vice-Presidents—Mr. A. H. Norton, of Portland; Miss Louise H. Coburn, of Skowhegan; Miss Kate Furbish, of Brunswick.

Secretary—Mr. Edward B. Chamberlain, of Cumberland Center.

Treasurer—Mr. Clarence H. Knowlton, of Hingham, Mass.

The following committees were continued for one year.

Publication—Mr. Knight, Mr. Knowlton, Mr. Chamberlain.

Plant Distribution—Prof. Fernald, *Chairman*, Mr. Chamberlain, Mr. Knight, Mr. Knowlton, Mr. Norton.

Plant Lore—Mrs. M. P. Salsman, *Chairman*, Mr. H. K. Morrell, Mrs. Morrell.

Bryophytes—Prof. J. F. Collins, *Chairman*, Mr. Chamberlain.

Algæ—Mr. F. S. Collins.

Fungi—Mr. P. L. Ricker.

On ballot, Mr. C. H. Bissell, of Southington, Conn., Miss Mary F. Leavett, of Newport, R. I., and Prof. K. M. Wiegand, of Wellesley, Mass., were elected to membership.

Prof. M. L. Fernald reported that the New England Botanical Club had recently obtained the herbarium of Miss Kate Furbish in addition to that of Prof. Fernald, making the collection the most representative one of the Maine flora in existence. This fact, as well as the issue of the revised Gray's Manual, made it seem advisable to take up the preparation of a new state flora. A hasty enumeration of the Club Herbarium showed 1,983 species and varieties of vascular plants represented by specimens from Maine. Allowing for species not represented and for those likely soon to be found, the total flora of the state was estimated as about 2,500 species and varieties. Besides the collections mentioned above there were various private herbaria, and the collections at the University of Maine, at Bates College, and at Bowdoin College, the latter containing the only set in existence of the plants collected on the early surveys of the state. It therefore seemed best that the Committee on Plant Distribution undertake the task of arranging the material available. The difficulties presented by the financial side of the question could doubtless be solved by the time the flora was ready for issue.

After considerable discussion it was voted that the committee proceed as outlined by Prof. Fernald.

The remainder of the evening was devoted to an informal talk by Prof. Fernald, upon the characteristics of some plants new to the Maine flora, illustrated by specimens of the species mentioned.

Friday morning a party of ten visited Great Chebeague Island, where a very profitable day was spent examining the shores and bogs. It had been especially desired to visit this island, since some years ago Miss Furbish had collected *Rosa acicularis* Lindl., var. *Bourgeauiana* Crèpin, there. While unsuccessful in finding the rose, the party was able to secure several very interesting species, among them being *Typha angustifolia* L., the most easterly station known in the state, *Carex salina* Wahl., var. *cuspidata* Wahl., *Petasites palmatus* (Ait.) Gray, *Arceuthobium pusillum* Peck, *Sisyrinchium gramineum* Curtis, *Carex Michauxiana* Boeckl., the most southerly station yet reported in the state, *Carex paupercula* Michx., var. *irrigua* (Wahl.) Fernald, *Arenaria serpyllifolia* L., the second station in the county.

The final business meeting was on Friday, July 2nd, with Vice-President Norton in the chair, and fifteen persons present. The place for the next field meeting of the Society was under discussion. Prof. Fernald spoke of meeting on Penobscot Bay, with headquarters at Rockland, Belfast, or Castine. The advantages here are, that the region has been mapped by the Geological Survey, that the underlying rocks include serpentines, granites, and limestone, offering an unusual diversity of soil, and that the region is easily accessible. Prof. Fernald and Mr. Chamberlain also spoke of the possibility of a meeting at Lowelltown or some near-by point on the line of the Canadian Pacific Railway, that portion of the state being absolutely unworked botanically. On motion of Mr. Stubbs, the President, *ex-officio*, Prof. Fernald and Mr. Chamberlain* were appointed a committee to make suitable arrangements for the next meeting. Mr. Norton extended an invitation to all who could do so to remain for the meetings of the New England Federation of Natural History Societies, which were to be held in Portland the following week.

The party broke up Saturday morning, having to abandon, on account of rain, the excursion to the outer islands of Casco Bay, which had been planned for this day.

EDWARD B. CHAMBERLAIN,
Secretary.

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*Mr. Chamberlain resigned later, and the President appointed Mr. F. S. Billings instead.

Report of the Treasurer.

C. H. KNOWLTON, *Treasurer*, in account with the JOSSELYN BOTANICAL SOCIETY OF MAINE.

RECEIPTS.

Cash on deposit August 1, 1908	$70.10	
Cash on hand August 1, 1908	4.88	
Received in fees and dues	23.50	
November dividend	1.41	
Sale of reports, less postage and Secretary's expense	.30	
		$100.19

EXPENDITURES.

Cost of 1908 meeting	$ 6.45	
Postage and envelopes	2.75	
New England Federation dues	1.00	
Printing bulletin for 1908	33.90	
	$44.10	
Cash on deposit	51.61	
Cash on hand July 1, 1909	4.48	
		$100.19

C. H. KNOWLTON,
Treasurer.

HINGHAM, MASS., June 28, 1909.

Report of the Committee on Bryophytes.

The Committee on Bryophytes begs leave to submit the following report for the year 1908–1909:

Neither member of your committee has been able to devote much time during the past year to the study of the Bryophytes of the state, hence this report is a summary of work that has been accomplished by others.

1. H. H. Bartlett: The Type Station of *Sphagnum Faxoni*. Rhod. **10:** 113–114. A note upon the discovery that the type station for this moss is upon Great Cranberry Island, Mt. Desert.

2. E. M. Dunham: Offerings. Bryologist **11:** 116; and **12:** 41. Three species of mosses, collected in Maine, are offered for free distribution to the members of the Sullivant Moss Society.

3. A. W. Evans: Notes on the New England Hepaticæ VI. Rhod. **10:** 185–193. This article, as all of the series, brings up to date our knowledge of the New England Hepaticæ, and includes much relating to Maine species, thirteen of which are recorded as new to the state. According to Dr. Evans, a total of 101 species of hepatics are now known from Maine, the total for New England being 147.

The above is a complete list of the articles dealing with Maine bryology that have come to the knowledge of your committee since the writing of their last report.

Respectfully submitted,

J. FRANKLIN COLLINS, } *Committee on*
EDWARD B. CHAMBERLAIN, } *Bryophytes.*

Report of the Publication Committee.

During the past year the second number of the Bulletin of the Society has been issued, a copy being mailed to each member. Copies were also distributed to the following libraries or other institutions: Bangor Public Library, Bates College, Boston Public Library, Boston Society of Natural History, Bowdoin College, Brown University, Colby College, Connecticut Botanical Club, Geological Survey of Canada, Gray Herbarium, John Crerar Library of Chicago, Library of Congress, Maine State Library, Manchester Institute of Arts and Sciences, Massachusetts Horticultural Society, Missouri Botanical Garden, New England Botanical Club, New Hampshire State Library, New York Botanical Garden, Portland Public Library, Portland Society of Natural History, United States Department of Agriculture, University of Maine, University of Michigan, University of Missouri, Vermont Botanical Club.

Copies of the Bulletin were also distributed by the Treasurer at one meeting of the New England Botanical Club. Four copies of the Bulletin have been sold and the proceeds deposited with the Treasurer. There are on hand about seventy-five copies of each issue.

EDWARD B. CHAMBERLAIN.

The New England Flora of the Future, or Changes in our Flora Due to the Destruction of the Forests.

[The following abstract is from notes taken by Miss Lucretia Packard, and revised by Prof. Fernald.—E. B. C.].

The subject of the address to-night is really that of weeds, since the introduced species of plants, or weeds, sooner or later come to occupy the clearings in the forest. Whenever the trees are cut off, the shade-loving species of plants that formed the forest undergrowth at first give way to such sun-loving native species as the white birch, the golden-rods, and fireweeds, but in the neighborhood of towns too often to the hardier immigrants from other countries. The cutting of the forest also permits the drying up and destruction of the humus layer, in the absence of which such woodland plants as the pyrolas, coral roots, and rattlesnake plantains find it impossible to develop at the root-tips that micorrhizal layer upon which their absorption of moisture depends. Such species, therefore, are the first to disappear upon the clearing of the forests, and in the long-settled countries have often become restricted to a few favored localities.

Had this country been free from outside influences, the changes thus brought about would have been much less marked, since it is most probable that American species, natives of the river beaches and natural meadows, would shortly have extended their ranges into the new clearings. But at the same time that the first settlers cleared the land, they unconsciously introduced hardy old-world weeds, which in the new surroundings speedily ran riot to the exclusion of the native plants. This process has been steadily operative to change the character of our flora. While there is no record of the earliest introduction of European plants, the list published in 1672 by John Josselyn in his "New England's

Rarities Discovered'' records 40 species of introduced plants as found around Black Point, the present Scarboro, Maine. Rather more than a century later Manasseh Cutler lists 66 European species that had appeared in cultivated land, among these being the dandelion, whiteweed, buttercups, and chicory. This importation has gone on at steadily increasing rates, until at present there are more than 600 introduced species which are definite elements of the New England flora, besides many others that occur a few times but fail of gaining a foothold.

There are many ways by which foreign plants are introduced into a region. During the remainder of this talk some of these methods will be taken up, each one being illustrated by specimens of some of the more local plants which are thought to have been introduced by it. It will be assumed, also, that the weeds which occur everywhere in Maine need no special comment. The simplest method of plant introduction is through impure grain or garden seed, by which, in spite of the activity of Experiment Stations and the testing of seeds, many species are introduced each year. In this way *Chenopodium incisum* Poir., a species of tropical America, has become thoroughly established at North Berwick; *Lychnis Floscuculi* L., the European Ragged Robin, is now of occasional occurrence in the grain fields throughout the state. Some twelve years ago *Berteroa incana* (L.) DC., and *Silene dichotoma* Ehrh., appeared at several widely scattered stations in the East, indicating very strongly their introduction through impure grain or clover seed. The former species has become rather more common, while the *Silene* has apparently lost ground. Of still more recent introduction is *Neslia paniculata* (L.) Desv., which in Maine is as yet known only from the Canadian Pacific railroad yard at Vanceboro,* but is likely to become more common. In York County *Sanguisorba officinalis* L., has been introduced through impure grass seed, and is now well established; likewise in Northern Maine and Lower Canada, where the native *Geranium maculatum* L., is not known, a similar European species, *G. pratense* L., has become established in

*This species was collected at Portland the day after this address was delivered.

the fields and meadows. *Anagallis arvensis* L., var. *cærulea* (Schreb.) Ledeb., which differs from the Common or Scarlet Pimpernel in having blue corollas, has recently appeared in grass land in Franklin County. Various Old-World species of *Galium* have likewise been brought to this country. Of these, *G. verum* L., is abundant in Eastern Massachusetts and of local occurrence in Hancock and Franklin Counties, Maine; *G. erectum* Huds., has been found at a small station in Falmouth, Me., but apparently not spreading. The complex genus *Centaurea* is also rapidly establishing itself in America, scattered stations for many of the European species being known. In Maine, besides *C. Cyanus* L., the Bachelor's Buttons, *C. nigra* L., is well established on Long Island, Portland Harbor, *C. Jacea* L., in York County, *C. Vochinensis* Bernh., at Orono, and *C. Scabiosa* L., in western Penobscot County.

A similar, but more complicated case, is presented by the various species of *Hieracium*. Our native species are few and well defined, but those of Europe are most variable and perplexing, the condition of the genus there being comparable to that of *Rubus* or *Crategus* in this country. For several years introduced species of this genus have been reported from various parts of Maine, the yellow-flowered forms being usually referred to *H. prealtum* Gochnat, and the orange-flowered ones to *H. aurantiacum* L. The latter species, which seems to be little variable, is common throughout southern and Central Maine; critical studies upon the other material, however, show that the Washington County plants are *Hieracium floribundum* Wimm. & Grab., the Kennebec Valley specimens *H. pratense* Tausch., and the material from the Piscataquis Valley, *H. Pilosella* L., var. *viride* Ser. True *Hieracium prealtum* is unknown in America, though its variety *decipiens* Koch, is established at Andover, Massachusetts.

The road-side weeds or ruderal plants of foreign countries form another group of species frequently introduced. In their native habitat their seeds readily fall into shoes, creases of clothing, or similar places, and are thus unwittingly imported. Once established, they are spread along pathways and roadsides by the constant movement of traffic. The following are examples of this class of introduced plants: *Scleranthus annuus* L., while common in southern New England, is in Maine abundant only at Wells Beach, but is steadily advancing northward; *Arenaria leptoclados* Guss., is established and spreading along the railroad embankments at Onawa; *Coronopus didymus* L., is established at North Berwick and Portland; *Thlaspi arvense* L., is abundant in the St. John valley, but as yet only sporadic along the railway lines further south. *Euphorbia Esula* L., for some years established in eastern Massachusetts, has spread to North Berwick, but only along the embankments of the Boston & Maine Railroad. *Lithospermum officinale* L., is a road-side weed in French Canada and around Fort Kent which is apparently unknown elsewhere in Maine, save through a single specimen collected many years ago at Manchester. *Lamium hybridum* Vill., is of still more recent introduction at Orono, Me., St. Johns, N. F., and Hingham, Massachusetts.

A third class of introduced weeds comprises those species that were at first cultivated for ornament or as vegetables. Thus *Portulaca oleracea* L., was grown by the early settlers as a pot herb; *Euphorbia Cyparissias* L., was an ornamental border-plant. This last, since it never perfects seed and spreads wholly by the root, is not likely to prove very troublesome. *Rumex Acetosa* L., still grown as a salad plant in Lower Canada and about the larger cities, in Maine occurs locally in fields. *Saponaria officinalis* L., and *Berberis vulgaris* L., are other relics of early cultivation, which are common only in the southern part of the state. The Garden Currant and the variegated form of the Japanese Hop-vine show a decided tendency to spread to moist thickets. Around Salem, Massachusetts, *Genista tinctoria* L., cultivated by the early settlers, has overrun the rocky pastures, and has spread along the railway lines to Kennebunk.

The ballast grounds around seaports, where ships dump the earth and rock used to steady them on the voyage, often prove prolific sources for introduced plants of the most diverse character. While certain species occur again and again, yet the soil of such "dumps" is so often disturbed and the climatic differences are frequently so great, that the species found there rarely become permanently established. In this fashion *Galeopsis Ladanum* L., or its variety *latifolia* Wallr., has occurred in some abundance for a year or so at such widely scattered stations as Gaspé Basin, Bangor, and Chelsea, but in no case persisting. Similarly, there are many species of common occurrence around woolen mills, as at North Berwick, Maine, Chelmsford and South Lawrence, Massachusetts. Wool-waste, which is thrown aside to decay and afterwards sold as fertilizer, contains the seeds of many species of plants common to the sheep ranges of the Northwest, California, or Australia, and such seeds often germinate. Mr. J. C. Parlin for several years watched very carefully the woolen-waste grounds at North Berwick, securing many scores of such introduced species. Among those of rather regular occurrence are: *Tragus racemosus* (L.) All., *Cenchrus carolinianus* Walt., *Polypogon monspeliensis* (L.) Desf., *Medicago hispida* Gærtn., *M. laciniata* (L.) Mill., *Erodium cicutarium* (L.) L'Her., *E. moschatum* (L.) L'Her., *Xanthium speciosum* Kearney, and *Bidens aristosa* (Michx.) Britt.

There are certain species, weeds in Maine, which represent introductions from the Prairies or the Great Plains. Such are *Rudbeckia hirta* L., introduced over fifty years ago, *Solanum rostratum* Dunal., *Ambrosia trifida* L., and various species of *Helianthus*, *Coreopsis* and *Artemisia*. Especially noteworthy here are *Acnida tuberculata* Moq., recently collected by Mr. Parlin at Canton, but common from the Champlain valley westward; *Erysimum parviflorum* Nutt., along railroads at Canton and Portland; *Pentstemon tubiflorus* Nutt., established at Wells, North Berwick and Fort Fairfield; *P. lævigatus* Ait., of occasional occurrence throughout the state during the last fifteen years; *Heliopsis scabra* Dunal, and *Helenium nudiflorum* Nutt., already established in parts of York County. Two tropical plants may be noted here: *Datura Metel* L., said to be established at Manchester, Maine, and *Galinsoga parviflora* Cav., var. *hispida* DC., a pest in southern Maine, which is rapidly spreading northward and eastward.

It is a noteworthy fact that in many cases there are indigenous plants, closely allied to the introduced species, which never become weeds. Thus *Plantago major* L., was introduced with the earliest settlers and is one of the commonest of weeds. The native plant, *P. major*, var. *asiatica* (L.) Dcne., is found upon the gravelly beaches and river banks from Labrador and Quebec westward across the continent in the coniferous belt, but neither becoming a dooryard weed, nor showing any tendency to spread to the fields and pastures. *Achillea Millefolium* L., and *A. borealis* Bong., illustrate the same rule. *A. borealis* is an indigenous plant, growing on the gravelly beaches along the lakes and rivers across the northern part of North America, but never occurring in the fields and pastures where the European *A. Millefolium* is found, although, the latter species does spread to the river banks. Other instances of such distribution are: *Taraxacum officinale* Weber and *T. ceratophorum* (Ledeb.) DC.; *Cynoglossum officinale* L., and *C. boreale* Fernald; *Tanacetum vulgare* L., and *T. huronense* Nutt. In studying the introduced flora the question naturally arises, then, how does it happen that these Old-World plants can compete so successfully with our own species? The explanation seems to lie in the different habitats of the related species. The indigenous plants usually grow in gravelly beaches or natural meadows, where in the course of many years they have become specialized products of a certain set of conditions and unable to adapt themselves readily to changes in their environment. The introduced plants, on the other hand, come from an old and closely farmed country where wild plants find scant room in which to grow. Hence, from centuries of fighting against civilization, these weeds have become extremely adaptable and able to flourish in the most unfavorable surroundings. Such plants, when introduced into the comparatively luxurious conditions of a new country, run riot and crowd out the native species, which, if left to themselves, might have developed weedy tendencies. Indeed the native golden-rods, asters, blackberries and violets already show signs of this stage of development. These genera are represented by a few stable species in the undisturbed regions such as Gaspé and northern Maine, but in the longer settled regions to the south and west, they seem to be in a peculiarly plastic state, due perhaps to the sudden impetus to variation given by the great increase in their natural habitat through the cutting of the forests. Besides the intensifying of any tendency to vary, hybridization has been frequent. Conversely, some of the asters and golden-rods are among the few American species that have readily become established in Europe, in competition with the plants native there.

In these various ways, then, a continual interchange is in progress between the different floras of the world, the more adaptable species spreading extensively, the specialized forms being crowded out. It seems probable, therefore, that in the course of a few centuries the basic elements of the flora of the whole civilized world will be the same cosmopolitan weeds, the native species forming only the local peculiarities of any given region.

Some Recent Additions to the Maine Flora.

[This article is an expansion of notes kept during an informal talk by Prof. Fernald. Specimens of all the species were exhibited, and remarks made upon the distribution and critical characters of each. The notes upon distribution are given here, with Prof. Fernald's permission, in the hope that they may be of interest to those unable to attend the meeting. E. B. C.]

The following plants represent interesting discoveries in the flora of Maine during the past few years. Some are merely extensions of range, others result from segregations due to recent critical studies upon the flora of the Eastern United States.

Lycopodium lucidulum Michx., var. *porophilum* (Lloyd & Underw.) Clute, a variety recently described from the southern Alleghanies, has been found along the St. Francis river in Aroostook County by Prof. Fernald, and at Gilead in the Androscoggin valley by Miss Furbish. *Eragrostis hypnoides* (Lam.) BSP., ranging from the Champlain valley westward, has recently been collected at Orono; *E. capillaris* (L.) Nees., has been found at North Berwick and at Canton by Mr. J. C. Parlin, and at Bangor by Mr. Knight. *Rynchospora capillacea* Torr., var. *leviseta* E. J. Hill, was collected by Prof. Fernald at Winslow in 1898, the only station known east of Michigan. *Carex siccata* Dewey, reaches its northeastern limit in Cumberland County and the Androscoggin valley; *C. alopecoidea* Tuck., collected at Vassalboro by Mr. Chamberlain in 1902, is known elsewhere in New England only from the Champlain valley; *C. granularis* Muhl., var. *Haleana* (Olney) Porter, occurs at Winslow with the *Rynchospora* mentioned above, this being the only station yet found east of the Connecticut valley; the station for *C. saxatilis* L., on Mt. Katahdin, is the only one known south of Hudson Straits.

Juncus bufonius L., var. *halophilus* Buchen. & Fernald, is abundant in the brackish marshes, along the Gulf of St.

Lawrence and at Cutler, Maine. It also occurs at Plum Island, Newburyport, Massachusetts, but has not been found at intermediate stations; *J. Oronensis* Fernald, now extinct at the original station, is found along the Alleguash and near the Rangeley Lakes; *J. dichotomus* Ell., var. *platyphyllus* Wiegand, not previously known east of Revere Beach, Massachusetts, has recently been found among the plants collected by Miss Furbish at Wells; a still more interesting discovery is *J. articulatus* L., var. *nigritellus* (Don.) Druce, found in a bundle of plants collected by Miss Furbish at Cutler, the only other stations being in the Scotch Highlands and in Lapland.

Habenaria leucophaea (Nutt.) Gray, until recently regarded as a plant of New York and the West, occurs in the Dead River region and at Crystal Bog; *Salix coactilis* Fernald, described from the vicinity of Orono, is now known to be the common willow of the lower Penobscot valley, and to be found also along the main St. John river. *Urtica Lyallii* Wats., was described from the Pacific coast, but within the last few years has been collected quite generally throughout the eastern states, where it has been confused with *U. gracilis* Aiton. *Rumex persicarioides* L., seems to be of sporadic distribution and not inclined to persist; the stations are at Fort Popham, Portland and Pine Point.

Chenopodium humile Hook., was found two years ago by Miss Furbish in a salt marsh near Brunswick, the only station known east of the alkaline regions of the interior. *Barbarea orthoceras* Ledeb., is common in the northern part of the continent, extending southward into the St. John valley. It has only recently been distinguished in this country from *B. stricta* Andrz. *Dentaria maxima* Nutt., a species of rich woods of the Middle and Central States, occurs on Outer Green Island and other exposed islets in Portland Harbor.

During the reorganization of Miss Furbish's herbarium at the New England Botanical Club, many interesting plants have come to light, among them being *Arabis canadensis* L., from Skowhegan, *Rosa acicularis* Lindl., var. *Bourgeauiana* Crèpin, from Great Chebeague Island and from Foster Point, Bath; *Baptisia tinctoria* (L.) BSP., at Wells; *Proserpinacea palustris* Lam., from Androscoggin Lake, North Leeds. In all cases these are the only localities for the species thus far known in Maine.

Oxalis filipes Small, has been collected once in Falmouth, Maine, and *O. stricta* L., in Belgrade, Scarboro, and several other localities. *Psedera quinquefolia* (L.) Greene, var. *hirsuta* (Don.) Rehder, has recently been detected near Bangor, the first station east of the Champlain valley. Of the recent segregates in *Viola*, three species form interesting additions to the Maine flora; *V. Brittoniana* Pollard, from Georgetown, its previous northern limit being the vicinity of Concord, Massachusetts; *V. Novae-Angliae* House, a characteristic species of the St. John and upper Penobscot valleys; *V. nephrophylla* Greene, a species originally described from the Rocky Mountain region, but now known throughout the limestone districts of central and northern Maine. *Œnothera pratensis* (Small) Robinson, has been until recently confused with *Œ. fruticosa* L. Stations for it are now known along the edges of the salt marshes as far north as Wells. The following plants are known in Maine from but a single station: *Sanicula trifoliata* Bicknell, one specimen collected many years ago at Manchester; *Hottonia inflata* Ell., South Berwick; *Samolus floribundus* HBK., Winnegance Creek; *Teucrium occidentale* Gray, at Orono.

The Maine material of the genus *Rhinanthus* has recently undergone much critical study, with the result that three species are now known to occur within the limits of the State. True *R. Crista-Galli* L., is found along the coast from Gaspé southwards; *R. oblongifolius* Fernald, from Mt. Katahdin, Mt. Washington, N. H., Mt. Marcy, N. Y., and Table-topped Mt., Gaspé; *R. Kyrollae* Chabert, in the St. John valley and adjacent Nova Scotia; fourth species, *R. stenophyllus* (Schur.) Schinz., is to be expected in Eastern Maine.

Two species of *Campanula* are also of interest; *C. aparinoides* Pursh, seems to be rather rare in Maine save in the southern portion, northward its place is taken by *C. uliginosa* Rydb.

Josselyn Botanical Society, 1909-1910.

The Star Indicates Members in Attendance at the June, 1909, Meeting.

*Miss Anna Barnes,	Houlton, Me.
Mrs. C. O. Barrows,	30 Exchange St., Portland, Me.
Mr. Ralph C. Bean,	Clinton, Me.
Mr. Francis M. Billings,	330 Essex St., Bangor, Me.
*Mr. C. H. Bissell,	Southington, Conn.
Mrs. M. C. Brainerd,	240 Madison Ave., Skowhegan, Me.
Miss C. C. Brainerd,	240 Madison Ave., Skowhegan, Me.
Mr. W. H. Brownson,	85 Market St., Portland, Me.
Miss Sarah W. Brooks,	Concord, Mass.
*Mr. Edward B. Chamberlain,	38 West 59th St., New York City.
Miss Lizzie Churchill,	107 Mason St., Greenwich, Conn.
Miss Mary A. Clark,	Ellsworth, Me.
Miss Louise H. Coburn,	Skowhegan, Me.
Prof. J. F. Collins,	468 Hope St., Providence, R. I.
Rev. I. B. Conley,	McKinley, Me.
Miss M. I. Corning,	East Hartford, Conn.
Miss Ellen M. Cram,	Care Gardner Cram, Brunswick, Me.
Prof. M. B. Cummings,	Orono, Me.
Miss F. L. Drummond,	Waterville, Me.
Mrs. A. B. C. Dutton,	20 Berkeley St., Cambridge, Mass.
Miss L. O. Eaton,	R. F. D. 32, Mt. Vernon, Me.
*Miss Alice I. Evans,	44 North St., Portland, Me.
Miss M. F. Farnum,	Pacific University, Forest Grove, Ore.
*Dr. D. W. Fellows,	17 Hill St., Portland, Me.
*Prof. M. L. Fernald,	Gray Herbarium, Cambridge, Mass.
Mrs. H. B. Fogler,	Skowhegan, Me.
Miss Kate Furbish,	Brunswick, Me.
*Miss S. M. Hacker,	Westbrook, Me.
Miss A. K. Hasty,	53 Spruce St., Portland, Me.
Prof. G. U. Hay,	Box 403, St. John, N. B.
Mrs. C. W. Keyes,	Farmington, Me.
Mr. C. H. Knowlton,	120 Boylston St., Boston, Mass.
*Mr. Ora W. Knight,	84 Forest Ave., Bangor, Me.
*Mrs. Ora W. Knight,	84 Forest Ave., Bangor, Me.
Rev. E. L. Krumreig,	East Machias, Me.
*Miss Mary F. Leavett,	14 Malbone Road, Newport, R. I.
Mr. Samuel A. Lurvey,	Box 134, Southwest Harbor, Me.

*Miss Nellie F. Mansfield,	Box 743, Portland, Me.
Miss Helen H. Marrett,	Standish, Me.
Miss F. Helen Mayo,	South Limington, Me.
Mrs. E. G. Meader,	84 Elm St., Waterville, Me.
Mr. H. K. Morrell,	Gardiner, Me.
Mrs. H. K. Morrell,	Gardiner, Me.
Miss E. H. Moody,	South Limington, Me.
*Miss Dora H. Moulton,	9 Hill St., Portland, Me.
Miss Jane B. Morse,	301 Spring St., Portland, Me.
Miss Harriet A. Nye,	Fairfield Center, Me.
*Mr. A. H. Norton,	22 Elm St., Portland, Me.
*Mrs. A. H. Norton,	22 Elm St., Portland, Me.
*Miss Lucretia Packard,	114 Court St., Houlton, Me.
*Miss Amber L. Parlin,	477 Main St., Lewiston, Me.
Mrs. G. D. B. Pepper,	Waterville, Me.
Mr. E. L. Rand,	1052 Exchange Bldg., Boston, Mass.
Mr. P. L. Ricker,	Bureau Plant Ind., Washington, D. C.
Mr. F. Seringhaus,	954 8th Ave., New York City.
Miss Else H. Seringhaus,	954 8th Ave., New York City.
Mrs. Frederick Spring,	Greenwich, Conn.
Mrs. C. F. Starbird,	Oxford, Me.
Miss Elsie L. Shaw,	Lexington, Mass.
Rev. A. L. Struthers,	Alfred, Me.
*Mr. Albert R. Stubbs,	207 Spring St., Portland, Me.
*Prof. K. M. Wiegand,	Wellesley, Mass.
*Miss Lena Willis,	Naples, Me.

Additional copies of this bulletin may be obtained from the Secretary, Mr. Edward B. Chamberlain, Cumberland Center, Me., at ten cents each.

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The Josselyn Botanical Society of Maine.

The sixteenth annual field meeting was held at Jackman, July 5–9, 1910.

Owing to various causes the attendance was small, and no list of plants was prepared.

The report of the Treasurer was presented and accepted. This showed a balance of $47.05 in the treasury.

Reports of several committees were received and accepted, and officers were elected as follows:

President—Dr. O. W. Knight, Bangor.

Vice-Presidents—Mr. A. H. Norton, Portland; Miss L. H. Coburn, Showhegan; Miss Kate Furbish, Brunswick.

Secretary—Dr. D. W. Fellows, Portland.

The committee of arrangements for 1911 consists of the following named persons: Dr. O. W. Knight, *ex-officio*, Prof. M. L. Fernald, Dr. D. W. Fellows.

Much to the regret of the Society, Mr. E. B. Chamberlain declined to serve longer as Secretary, or in any other official capacity, as he expects to be absent from the state during the next year.

Winter Meeting, February 24-25, 1911.

Acting on a suggestion of several members, a winter meeting of the Society was called by the officers of the Society for February 24–25, 1911. By the courtesy of the Portland Society of Natural History, the meetings were held in the Lecture Room of the Society's building in Portland, beginning on Friday evening, February 24.

In the absence of the President, Dr. O. W. Knight, Mr. A. H. Norton presided. Following the opening of the session, Major John M. Gould, in a brief address, extended a most cordial welcome to the Josselyn Society and an invitation to avail themselves of the rooms, the collections, and the library of the Portland Society.

Dr. D. W. Fellows reported for the Committee of Arrangements. He thought the Society particularly fortunate in being able to secure men of the highest attainments, each in his special field, to present the subjects on the programme, calling attention to the fact that these are not men of leisure, but men whose every hour is fully occupied with their various duties; and, speaking for the Society, he thanked the speakers for the sacrifices they had made in bringing these interesting and important subjects before the Society.

The following were elected to membership at this session, viz.: Mr. Prentice C. Manning, Portland; Mr. Robert A. Ware, Boston; Prof. Manton Copeland, Brunswick.

Then followed the addresses as previously arranged:

"Character in Winter Buds," by Prof. Karl M. Wiegand, of Wellesley College, Wellesley, Mass.

"The Hair-Cap Mosses of Maine," by Prof. J. Franklin Collins, of Brown University, Providence, R. I.

"Geographical Distribution of Lichens in Maine," by Dr. Lincoln W. Riddle, of Wellesley College.

On Saturday morning, which was clear and cool, a large party went by electric car to Pond Cove schoolhouse, Cape Elizabeth, and walked by the shore road to Cape Cottage.

Prof. Wiegand demonstrated the fact that trees and shrubs may be readily determined by their winter characters, especially of the buds and leaf-scars. About twenty-five species of trees and shrubs were thus distinguished.

Prof. Collins succeeded in collecting several species of hair-cap mosses on sunny banks, though the ground was mostly snow covered.

Dr. Riddle collected from trees, rocks and fences thirty species of lichens, which he demonstrated to the members of the party, most of whom had very little knowledge of this division of the plant world. Among the more interesting species found were the coastal *Cladonia reticulata* and the southern *Usnea trichodea*.

Prof. Fernald called attention to the fruit of trees and shrubs, and also of herbaceous plants which stand through the winter. The capsules or other coverings, and the structure and divisions are more easily seen and understood than during the season of flowering.

Saturday afternoon, Prof. Fernald spoke on "Recent Additions to the Maine Flora," illustrating all the plants mentioned by mounted specimens.

Mr. C. H. Knowlton, of Hingham, Mass., described "The Boreal Flora of the Washington County Coast." This was also illustrated by specimens pressed and mounted.

Abstracts of all these will be found in the Bulletin.

At this session five were elected to membership, viz.: Mrs. Winfield E. Hanson, Kennebunkport; Mrs. Charles S. Wilson, Portland; Mr. Hiram Ellis, Portland· Miss Nellie F. Dunton, Bath; Mrs. F. P. Abbott, Saco.*

Before the call for this meeting was sent out a circular was prepared and sent to teachers of botany in Maine, and others who, it was thought, would be interested in the subject, and also to many of the newspapers published in the state, setting forth the objects of the Society, and its desire for a larger membership. Many papers published the announcement, in whole or in part, and many letters have been received by the Secretary, expressing approval of the Society and its work.

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*Four applications for membership were received too late to be acted upon by the Society.

The field meeting will be held this year in Brunswick, probably Aug. 22–25.

Character in Winter Buds.

PROF. K. M. WIEGAND.

[Abstract.]

Trees and shrubs grow in height from year to year by additions either from the very tip of stem and branches or from axillary shoots very near the end. A portion of this new growth is formed the season before and carefully protected during the winter by bud-scales, hair, etc. These coverings prevent drying out and mechanical injury, but are not important in modifying temperature.

Woody plants may be identified almost as well in winter as in summer. Character is to be found in the presence or absence of terminal buds; shape and position of the leaf-scars; number and arrangement of the bundle-scars left upon the leaf-scar by the fibro-vascular bundles in the petiole; presence or absence of stipule-scars, etc. The number of the visible bud-scales is important, and whether they are modified blades, petioles, or stipules. The pith is important in some cases, as, for instance, in the walnuts and butternuts, where it is beautifully diaphragmed. Analytical keys have been made, based on these characters, thus enabling one to identify twigs in winter. A study of buds and twigs soon produces an individualization of the winter forest landscape in the mind of the student quite in contrast to the ordinary feeling that there is no character in the woods in winter.

The paper was illustrated with twigs representing most of our common woody plants.

Key to the Hair-Cap Mosses of Maine.

PROF. J. FRANKLIN COLLINS.

[Condensed from a lecture given before the Josselyn Botanical Society of Maine, at the Portland meeting, Feb. 24, 1911.]

Disregarding many of the more technical characters of the genus *Polytrichum* (as interpreted by the older bryologists) it may be recognized by the angled capsules, the densely hairy calyptra, together with the many lamellæ on the upper surface of the leaf. This latter character can be seen only with a higher magnification than that furnished by the ordinary pocket lens.

1. Leaf margins serrate, not folded over the lamellæ..... 2

1. Leaf margins folded over the lamellæ, no teeth visible at the margin.................................. 6

2. Marginal cells of the lamellæ in cross section higher than broad. Capsule broadest below the middle. Rare. *Polytrichum gracile* Dicks.

2. Marginal cells of the lamellæ in cross section broader than high...................................... 3

3. Marginal cells of the lamellæ transversely oval or elliptic. Capsule usually broadest at the mouth and tapering towards the base. Common in woods, etc. *Polytrichum ohioense* Ren. and Card.

3. Marginal cells of the lamellæ in cross section more or less crescent shaped.............................. 4

4. Leafy plants (gametophytes) long, typically more than six inches (often very long), with more or less shining leaf bases. Capsules large, nearly if not quite a quarter of an inch long. Calyptra hairs usually golden brown........................... 5

4. Leafy plants shorter (one to five inches long). Dry leaves usually appressed, with somewhat spreading tips. Capsule smaller, rarely much exceeding an eighth of an inch in length. Calyptra hairs usually dirty brown, rarely reddish brown. Common, especially in moderately dry situations. The plant which has long passed as typical *Polytrichum commune* in America. *Polytrichum commune*, var. *perigoniale* (Mx.) Br. Eur.

5. Dry leaves usually appressed, with somewhat spreading tips. Generally growing in very damp situations. Rare. The typical European *Polytrichum commune* L.

5. Dry leaves abruptly and widely speading from the base. Otherwise much as in the preceding, though the capsule may occasionally be smaller and the leaves slenderer. In wet situations. Rather rare. *Polytrichum commune*, var. *uliginosum* Hueb.

6. Leaves prolonged into a whitish or transparent hair-like tip. Common on sandy or sterile soil. *Polytrichum piliferum* Schreb.

6. Leaves not prolonged into a transparent hair-like tip... 7

7. Leaves loosely appressed when dry, typically more than a quarter of an inch long. Frequently in dry or moist situations. *Polytrichum juniperinum* Willd.

7. Leaves short (less than a quarter of an inch long), closely appressed when dry, forming slender strict shoots. Stems tomentose below. In wet places, peat bogs, etc.; smaller and more compact on the mountains. *Polytrichum strictum* Banks.

Geographical Distribution of Lichens in Maine.

DR. L. W. RIDDLE.

[Abstract.]

The problem of the geographical distribution of lichens is complicated by the peculiar nature of the lichen-thallus, or vegetative body. Investigation has shown that this is made up of fungus filaments growing in association with the cells of some alga. The so-called fruit of the lichen is in reality the fruit of its fungus-component only. When the spores of this are scattered they must meet with the cells of the particular alga to which they are adapted, in order to develop into a new lichen. This introduces an element of uncertainty. To avoid this, the lichen has additional means of reproduction by a direct or modified method of fragmentation of the parent-thallus, each piece so formed developing a new lichen. On account of the extensive use of this method, and on account of their adaptability and resistance to unfavorable conditions, lichens are widely distributed. Many of the species, however, are more or less confined to definite life-zones, as are the higher plants.

In Maine there are four chief geographical regions, from the point of view of lichen distribution. The first is a boreal region, best represented in the conifer forests of northern Maine. The second region is a transitional one, forming a broad belt across the middle of the state, and having a lichen flora made up of both boreal and austral elements. The third region is the sandy country south of Portland, and is essentially austral in its character. But probably the most interesting region of all is the exposed rocky coast from a point above Portland, north to Eastport. Most of the characteristic boreal lichens occur, also, in this coastal region. Some of these (e. g., *Usnea longissima*), are found in the

transitional zone, but less well developed. Others (e. g., *Umbilicaria flocculosa*), skip the transitional region entirely.

Few strictly typical southern lichens have been recorded from Maine, but it is very probable that a careful exploration of York County would bring southern species to light. This is suggested as a promising field for local collectors.

Recent Additions to the Flora of Maine.

PROF. M. L. FERNALD.

[Abstract of lecture.]

Since the meeting of the Society, in July, 1909, many plants have been added to the flora of the state. Of these about twenty-five are not only new to the state, but additions to the range covered by Gray's Manual.

Among some of these interesting plants exhibited were *Limosella aquatica*, var. *tenniflolia*, a little plant of brackish or saline mud, which was long ago reported from Scarboro, but the occurrence of which in Maine has been doubted. This was found in 1909, at Winnegance.

Elsholtzia Patrini is a little blue-flowered mint, with the fragrance of lemon verbena, native of Japan and China, which became in some way introduced and established in 1887, about Lake Temiscouata, in Quebec. It has now spread along the Canadian Pacific Railway and the Bangor & Aroostook, and is common near the station at New Limerick.

Barbarea vulgaris, var. *hirsuta*, a variety of the yellow rocket with hairy, instead of smooth leaves, is found in fields at North Berwick, the only place known for it in America.

Brassica alba, the white mustard, differing from our other mustards in having the pod very bristly and the upper half flat and beak-like, is a common weed about Eastport, but unknown as a wild plant elsewhere in the state.

Ranunculus Purshii, a little buttercup with round, floating leaves and tiny, golden-yellow flowers, was found in 1909 about springs at New Limerick, the first time it has been known in New England.

Many other plants with more technical points of distinction were shown, and the fact pointed out that since few workers are bringing to light so much that has been unknown, a larger organization of workers would secure tremendous results.

The Boreal Flora of the Washington County Coast.

MR. CLARENCE H. KNOWLTON.

Mr. Knowlton's talk may be summarized as follows: Washington County, near the coast, is largely covered with the so-called Canadian forest, in which firs, arbor vitæ, and the spruces predominate. This same kind of forest is found in the western part of the state, mainly on the higher hills and mountains, and in cold swamps. Here it is found at sea-level, with all the accompanying herbaceous plants. But there is by the coast a considerable number of coastal and salt-marsh species, much more boreal than the forest. *Mertensia maritima* (L.) S. F. Gray, *Elymus arenarius* L., *Carex norœgica* Willd., and *Iris setosa* Pall., var. *canadensis* Foster, are characteristic species, many of which are found on the northern shores of both continents. Truly arctic in character are many of the peat-bog plants, among which are *Empetrum nigrum* L., and *Rubus chamæmorus* L., found elsewhere in Maine only on the higher mountains, above timber line.

This extreme boreal flora is near the coast only. The cold winds and fogs from the Labrador current outside neutralize the summer sunshine, and produce arctic and subartic conditions at latitude 44–45°.

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Josselyn Botanical Society of Maine.

The seventeenth annual meeting of the Society was held in Brunswick, August 22–25, 1911, with headquarters at the Eagle Hotel.

Nineteen members and guests were in attendance during the meetings.

Field activities were directed less to the exploration of new localities than to visiting those of which something was already known. Several points on the Androscoggin River, in both Brunswick and Topsham, were examined.

Among the plants collected along the shores and low grounds, the following seem worthy of mention:

Carex Crawfordii, var. *vigens*, *Carex scoparia*, var. *condensa*, *Cyperus filiculmis*, var. *macilentus*, *Cyperus strigosus*, *Eleocharis diandra*, *Apocynum cannabinum*, *Campanula rotundifolia*, *Bidens hyperborea*, *Solidago racemosa*.

Winnegance Creek, near Bath, and its shores and marshes, afforded many plants of rare occurrence and unusual interest. In this immediate vicinity were found the following:

Muhlenbergia racemosa, *Panicum virgatum*, *Cladium mariscoides*, *Cyperus Nuttallii*, *Eleocharis rostellata*, *Scirpus nanus*, *Gerardia virginica*, *Lilaeopsis lineata*, *Limosella aquatica*, var. *tenuifolia*, *Myriophyllum spicatum*, *Polygonum aviculare*, var. *littorale*, *Quercus alba*, *Samolus floribundus*, *Selaginella rupestris*, *Lophotocarpus spongiosus*, *Ruppia maritima*, var. *rostrata*, *Zannichellia palustris*.

Through the courtesy of the authorities of Bowdoin College, the evening meetings of the Society were held in Massachusetts Hall.

The first business meeting was called on the evening of the 22nd, and in the absence of the President the Vice-Presidents, Mr. A. H. Norton and Miss Kate Furbish, presided. Mr. Robert A. Ware was appointed Secretary *pro tempore*. Prof. Henry L. Chapman gracefully welcomed the Society, and spoke at some length of the "Patron Saint" of the Society, John Josselyn, of Black Point (Scarboro), who in 1672 published his "New England's Rarities". This included a description of the plants that he had observed at Black Point, and probably elsewhere in New England. Mr. Ware, by request, responded to the address of welcome.

The records of the preceding meeting were read and approved.

On the afternoon of the 24th, the members of the Society and a number of guests took great pleasure in examining the Furbish paintings of Maine plants in the college library.

At an adjourned meeting, on the evening of the 24th, the Treasurer's report, showing a balance in the treasury of $39.73, was read and accepted.

Officers for the ensuing year were elected as follows:

President—Miss Kate Furbish, Brunswick.

Vice-Presidents—Prof. Manton Copeland, Brunswick; Miss Louise H. Coburn, Skowhegan.

Secretary—Dr. Dana W. Fellows, Portland.

Treasurer—Mr. Clarence H. Knowlton, Hingham, Mass.

Committee of Arrangements—Miss Kate Furbish, *ex-officio*, Prof. M. L. Fernald, Dr. D. W. Fellows.

The standing committees were continued, viz.:

Plant Distribution—Prof. M. L. Fernald, Mr. E. B. Chamberlain, Dr. O. W. Knight, Mr. C. H. Knowlton, Mr. A. H. Norton.

Plant Lore—Mrs. M. P. Salsman, Mr. H. K. Morrell, Mrs. H. K. Morrell.

Bryophytes—Prof. J. F. Collins, Mr. E. B. Chamberlain.

Algæ—Mr. F. S. Collins.

Fungi—Mr. P. L. Ricker.

To Restore Lost Records—Mr. E. B. Chamberlain, Dr. D. W. Fellows, Mr. C. H. Knowlton.

It was voted that the thanks of the Society be extended to Professors Chapman and Davis, and through them to the college, for the consideration and hospitality received from them.

Adjourned.

ROBERT A. WARE,
Secretary pro tem.

1912.

The Society convened for its eighteenth annual meeting, at Gardiner, August 7, 1912, the sessions and field work continuing four days.

The Society having received an invitation from Mr. Robert H. Gardiner to visit his residence and grounds near the city of Gardiner, the afternoon of the first day was devoted to a ramble through his extensive fields and woods and gardens, ending at the house at five o'clock, when a delightful tea was served to all the members of the Society. No notes could be taken of the great variety and profusion of rare and beautiful flowers in the gardens surrounding the old stone mansion, but in portions of the estate were many acres of natural forest, with hills and streams and meadows, in which were found many of the characteristic and interesting plants of the region, as well as some of rare occurrence. *Desmodium grandiflorum*, *Gerardia virginica*, *Sorbaria sorbifolia*, *Ribes floridum*, *Glyceria laxa*, and three species of *Lysimachia* were found either native or naturalized.

The first business meeting was held in the parlors of "Castle Dizzy", the home of Mrs. Jennie May Morrell, the President, Miss Kate Furbish, in the chair.

The Secretary read the records of the previous meetings, which were corrected and approved.

The Treasurer's report was read and accepted. This showed a balance in the treasury of $61.99.

The Committee to Restore Lost Records reported that so far as the committee could ascertain, all available material had been obtained, and that the record submitted for each of the five annual meetings is probably as nearly complete as it can now be made.

It was voted that the report be accepted, and that the same be made a part of the records of the Society.

The Committee on Plant Distribution could not make a complete or detailed report.

Several members reported the collection of unusual plants, as follows:

By Mr. Stubbs of *Ludvigia polycarpa*, *Iva xanthifolia*, *Carex annectans*, and *Carex aenea*, all near Portland.

Miss Kate Furbish reported *Galium verum* and *Luzula nemorosa* from Bath.

Mr. Bean had collected *Podostemon cerataphyllum* in Winslow, and *Potentilla fruticosa* in Pittsfield.

Mr. Norton reported *Iris setosa canadensis* from Jonesport and Little Duck Island, and *Euphrasia americana* from the same localities.

Also *Iris prismatica* by Mrs. Norton from Flint Island, *Pinus Banksiana* in Gouldsborough, *Rubus chamaemorus* on an island near Jonesport, and abundant in Gouldsborough, and *Potentilla fruticosa* on Crumple Island, near Jonesport.

The following committee was appointed to nominate officers, viz.:

Mrs. Jennie May Morrell, Mr. A. H. Norton, Mr. R. W. Woodward.

Thursday, August 8th. The Society made an all-day excursion to "Tacoma", at Purgatory Pond, in the town of Litchfield, making collections in Gardiner, Litchfield and Monmouth.

Glyceria laxa and *Oenothera cruciata* were collected in Gardiner. In Litchfield were found *Physalis virginiana*, *Pyrola chlorantha*, *Galium boreale* and *Cornus amomum*. A swamp yielded *Habenaria blephariglottis* and the shores *Apocynum cannabinum* and *Asclepias incarnata*, var. *pulchra*.

A small party crossed to the west side of Purgatory Pond, and found *Picea canadensis*, *Epipactis repens*, var. *ophioides*, and *Potentilla arguta*. Rain in the afternoon made field work unpleasant. The parties returned to Gardiner, and devoted the evening to the care of wet plants and garments.

Friday, August 9th. The whole party went by carriage through Randolph and Pittston to Nahumkeag Pond. In Randolph were *Centaurea nigra*, *Stellaria graminea*, var. *latifolia*, *Zizania aquatica* and *Scirpus Torreyi*, while in a field in Pittston *Hieracium pratense* was somewhat abundant, and by the roadside grew *Agropyron caninum* and *Andropogon furcatus*. Nahumkeag Pond and its shores afforded a good variety of plants, among which were *Scirpus georgianus*, *Lobelia Dortmanna*, *Nymphaea rubrodisca*, *Utricularia gibba*, *Utricularia purpurea*, and a hillside near was beautiful with an abundance of *Adiantum pedatum*, *Phegopteris hexagonoptera* and the green leaves of *Cypripedium pubescens*. Here, also, was found *Galium lanceolatum*. In Chelsea bog, in the town of Chelsea, which was visited by a small party, *Ophioglossum vulgatum* was growing in great abundance and of enormous size.

Friday evening, August 9, at 8.00 P. M., a meeting was held in the high school building, which the school authorities of Gardiner generously opened for the use of the Society.

The following were proposed for membership, and all were duly elected, viz.:

Mrs. Edward P. Pennell, Brunswick; Mrs. Herbert P. Morrell, South Poland; Mr. Herbert Nelson Morrell, South Poland; Mr. J. M. L. Bates, Gardiner; Mr. A. T. Reynolds, Gardiner; Mr. L. W. Robbins, Mars Hill; Mrs. L. W. Robbins, Mars Hill.

It was voted that the field meeting of 1913 be on Penobscot Bay, at Rockland, Camden or Castine, and that the place and the time of meeting be decided by the committee of arrangements.

Twenty-six members and guests were in attendance at the meetings and field excursions.

The following were elected as officers of the Society, viz.:

President—Miss Louise H. Coburn, Skowhegan.

Vice-Presidents—Prof. Manton Copeland, Brunswick; Mr. Albert R. Stubbs, Portland.

Secretary—Dr. Dana W. Fellows, Portland.

Treasurer—Mr. Ralph C. Bean, Clinton.

Committee of Arrangements—Miss L. H. Coburn, *ex-officio*, Dr. D. W. Fellows, Portland; Mr. G. K. Merrill, Rockland.

Committee on Plant Distribution—Prof. M. L. Fernald, Cambridge, Mass.; Dr. D. W. Fellows, Portland; Miss Lena Willis, Naples.

Committee on Bryophytes—Mr. E. B. Chamberlain, New York City; Prof. J. F. Collins, Providence, R. I.

On motion of Mr. Chamberlain, the following resolution was unanimously adopted: That the members of the Josselyn Botanical Society of Maine, in expressing their sincere appreciation of the many kindnesses which have been shown them during the eighteenth annual meeting, desire especially to thank Mrs. Jennie M. Morrell, Mr. Reynolds and Mr. Robbins for so carefully planning the various excursions; also to thank Mr. and Mrs. Robert H. Gardiner for their kind hospitality of Wednesday.

It is also desired that the thanks of the Society be extended to Mr. J. M. L. Bates and the School Board of Gardiner for the use of this building, to Mr. Frank Smith, of Tacoma, and to Mr. Douglass, of the Johnson House.

It is further moved that the Secretary be directed to communicate a copy of this resolution to the persons mentioned.

1913.

The Josselyn Botanical Society of Maine was called to meet at Thomaston Tuesday, August 12, 1913. Many members arrived during the day, and in walks about the town many naturalized plants were seen by the roadside and in waste places. *Tussilago Farfara*, *Echinocystis lobata*, *Papaver Rhoeas*, *Sisymbrium officinale*, *Tragopogon pratensis*, *Sonchus arvensis*, *Plantago lanceolata*, *Coronilla varia*, and *Lysimachia Nummularia*.

The first meeting was called to order in the parlors of the Knox Hotel, at 8.00 P. M. In the absence of the President and Vice-Presidents, Mr. E. B. Chamberlain was called to the chair.

Records of the previous year were read and approved.

Twenty members and guests were present.

The report of the Committee on Bryophytes was presented by Mr. Chamberlain and accepted.

The report of the Treasurer, showing a balance in the treasury of $79.56, was read and accepted.

A report of the Committee of Arrangements was presented by Mr. G. K. Merrill, suggesting various excursions for the members during their stay in Thomaston.

Wednesday, August 13th, excursions for collecting were made by various parties to Mt. Megunticook and Mt. Battie and Lake Megunticook, to Lily Pond in Rockport, to Beauchamp Point and Pine Hill, also in Rockport, and to various localities in Thomaston.

The party from the shore in Rockport reported *Daphne Mezereum*, *Teucrium occidentale*, var. *boreale*, *Galium labradoricum*. At the Lily Pond in Rockport were found *Linum Catharticum*, *Scirpus occidentalis*, *Spiranthes Romanzoffiana*, *Daphne Mezereum*, *Carex muricata*, *Dirca palustris* and numerous *Potamogetons*.

At the business meeting, at 8.00 P. M., committees were appointed as follows, viz.:

To Nominate Officers—Prof. M. L. Fernald, Mrs. R. C. Bean, Miss Lena Willis.

On Resolutions--Dr. D. W. Fellows, Mr. A. H. Norton, Miss Kate Furbish.

The following named persons were proposed for membership and were duly elected: Mr. Norman W. Lermond, Thomaston; Mrs. Ralph C. Bean, Clinton; Miss Clara A. Sharp, 528 Broadway, So. Boston, Mass.; Miss E. Hazel Anne, Gardiner.

Thursday, August 14. Trips were made by small parties to the large bog in Thomaston, to Warren, to South Thomaston and to Islesboro as well as to other stations nearer. Among the plants brought in were *Sparganium americanum*, *Glyceria laxa*, *Polygonum ramosissimum*, var. *atlanticum*, and *Gerardia virginica* from South Thomaston. The party at Islesboro collected *Deschampsia caespitosa*, var. *parviflora*, *Salicornia europaea*, var. *prostrata*, *Dianthus plumarius*, *Fragaria virginiana terrae-novae* and *Galium labradoricum*. The St. Georges river, its shores and alluvium, afforded *Corylus rostrata*, *Corylus americana* and *Allium canadense*. The Thomaston party collected *Potamogeton Oakesianus*, *Glyceria laxa*, *Carex aurea*, *Carex Bebbii*, and *Potentilla pennsylvanica*.

In the evening, at 8.00 o'clock, Professor Fernald gave a most interesting talk on "The Coastal Plain Element in the Maine Flora", illustrated by many maps and specimens.

The Committee on Nominations made report, and officers were elected as follows:

President—Mr. A. H. Norton, Portland.

Vice-President—Prof. Manton Copeland, Brunswick.

Secretary—Dr. D. W. Fellows, Portland.

Treasurer—Mr. R. C. Bean, Clinton.

Committee on Plant Lore—Mrs. Jennie May Morrell, Gardiner.

Committee on Bryophytes—Mr. E. B. Chamberlain, Round Pond; Prof. J. F. Collins, Providence, R. I.

Committee on Plant Distribution—Prof. M. L. Fernald, Cambridge, Mass.; Dr. D. W. Fellows, Portland; Miss Lena Willis, Naples; Mr. A. H. Norton, Portland; Dr. O. W.

Knight, Portland; Mr. E. B. Chamberlain, Round Pond; Mr. C. H. Knowlton, Hingham, Mass.

The publication of a bulletin was discussed, but such publication was not authorized.

A Committee of Arrangements was chosen, consisting of:

Mr. A. H. Norton, *ex officio*, Dr. D. W. Fellows, Mr. G. K. Merrill.

A vote of thanks was tendered to those who generously contributed to the interest and success of the meetings.

Friday, August 15. As the field parties returned late the previous day, and the evening had been devoted to the formal program, Friday forenoon was chiefly spent in caring for the specimens collected previously. In the afternoon one party made an excursion to the "Indian Garden" in Warren, a broad, moist tract of alluvium on the St. Georges river, well above the influence of salt water. The other party went to South Thomaston, again visiting Weskeag mill pond, which is a large area of salt marsh, and to Elwell Point.

The Warren party collected along the road, and at the "Indian Garden", *Potamogeton americanus*, var. *novaeboracensis*, *Quercus bicolor*, *Decodon verticillatus*, *Elatine americana* and *Viburnum Opulus*. The South Thomaston party returned with *Distichlis spicata* from the Weskeag marshes, *Spartina patens*, var. *caespitosa*, *Ammophila arenaria* and *Euphrasia Randii Farlowii* from Elwell Point.

At the evening meeting, the subject of choosing a place for the next meeting was discussed, the following places being mentioned, viz.: Kennebunkport, Fort Fairfield, Van Buren, Winthrop. It was voted that the selection of a place, and the date of the meeting, be left with the committee, but it was apparent that the sentiment of the members present was strong in favor of some place in Aroostook County.

Mr. Lermond then presented the subject of organizing a State Scientific Association. No definite action was taken and the Society adjourned.

D. W. Fellows,
Secretary.

Report of the Committee on Bryophytes, 1913.

The Committee on Bryophytes begs leave to submit the following report:

During the time that has elapsed since the presentation of the last formal report the work upon Maine bryophytes has been confined almost exclusively to the hepatics. The committee is not aware of any literature relating to the mosses which bears upon Maine plants. Dr. A. W. Evans, of Yale, has published two lists of "Notes upon New England Hepaticae" listing seventeen additions to the Maine Hepatic Flora. The same author has revised his Preliminary Checklist of the New England Hepaticae, and indicates in that 123 species as represented from Maine by authentic specimens. The previous list reported only seventy-five species, some of them doubtful, so that the newer list represents a gain of over 60%. In this Maine compares very favorably with the other New England States, considering the difference in area and the comparatively small amount of work that has been done.

Respectfully submitted,

J. FRANKLIN COLLINS, } *Committee on*
EDWARD B. CHAMBERLAIN, } *Bryophytes.*

1914.

The twentieth annual field meeting of the Josselyn Botanical Society of Maine occurred at Van Buren, Aroostook Co., July 14th–18th, 1914, with headquarters at the Hotel Hammond, and the following in attendance: Miss Anna Barnes, Mr. and Mrs. R. C. Bean, Mr. C. H. Bissell, Mr. E. B. Chamberlain, Miss Mary I. Corning, Mr. J. H. Emerton, Dr. D. W. Fellows, Mr. and Mrs. C. H. Knowlton, Miss E. M. Moody, Mr. A. H. Norton, Miss Elsie L. Shaw, Mrs. C. F. Starbird, Mr. C. A. Weatherby, Miss Lena Willis, Mr. R. C. Woodward.

The country in the vicinity of Van Buren has largely been cleared and the swamps drained. The river banks, also, at this time of year, were more or less covered with waste from the sawmills, and lacked the broad expanse of shingle familiar to those who have visited Fort Kent or Fort Fairfield. These circumstances, and the absence of any pronounced outcrops of country rock, rather narrowed the possibilities in the way of collecting and account for the absence of some species otherwise to be expected. The following account is only a summary of the various excursions and meetings, with mention of the more noteworthy plants seen or collected.

Most of the party reached Van Buren Monday evening, July 13th, though a few spent the day in the vicinity of Limestone and Phair, at the latter place securing a quantity of *Ranunculus Purshii*. The first excursion was to the river banks below the town, which were somewhat carefully explored for a distance of two miles. The absence of *Tofieldia glutinosa* and *Hedysarum boreale* and the rarity of *Oxytropis campestris*, var. *johannensis*, and *Senecio Balsamitae*, all of which were expected, was conspicuous. *Anemone canadensis*, *Astragalus alpinus*, var. *Brunetianus*, *Calamagrostis neglecta*, *Lathyrus palustris*, *Pedicularis Furbishiae*, *Potentilla Anserina*, *Senecio Robbinsii*, and *Salix pellita* were common and characteristic. In the afternoon a party visited a small arbor-vitæ swamp at the top of the low hills bordering the river valley. Such a situation for the arbor-vitæ swamps, which usually were of small extent without any conspicuous brook, was characteristic of the region. *Epipactic repens*, var. *ophioides*, *Listera cordata* and *Petasites palmatus* were common, with occasionally *Calypso borealis* (three fruiting plants only), *Cypripedium hirsutum*, and *Listera convallarioides*. There was an informal gathering in the evening for the discussion of collections, comparisons of notes, and plans for the next day.

The first business session was called to order by the President, Mr. A. H. Norton, at 8.00 P. M., in the parlors of the "Hammond".

The Secretary read the records of the preceding meeting, which on motion were approved.

Mr. R. C. Bean presented the Treasurer's report, showing the amount in the treasury $88.27. The report was accepted.

Report of Committee on Plant Lore was called, but no member of the committee was present and no report was made.

Mr. Chamberlain, for the Committee on Bryophytes, submitted articles published in the Bryologist on Maine hepaticae, by Annie Lorentz, and stated that these include all that is new or worthy of report on Bryophytes in Maine since the last report. Miss Lorentz's "Notes" were published in the Bryologist, XVII, 28, 40 (March, May, 1914).

Dr. Fellows made a brief report for the Committee of Arrangements, stating that as the locality was not familiar to any member of the committee, and the great distance and other considerations made it impracticable for them to visit the region previous to the meeting, it had been found impossible to plan in detail the field work of the society; but that an effort would be made to arrange excursions and collecting trips, so that announcement could be made each day of the work for the following day. The Society was urged to cooperate in forming small parties to visit different points at the same time. Acting on a suggestion of the President, it was voted to call the evening meetings at 7.30.

A committee was appointed to nominate officers for the coming year, consisting of:

Mr. C. H. Bissell, Mr. R. C. Bean, Mr. J. H. Emerton.

The Secretary was authorized to send the following telegram:

"To Miss Kate Furbish, Brunswick, Me.

"The Josselyns send greetings and best wishes from Aroostook to the 'Flower Lady', and regret that conditions do not permit her to be present."

Adjourned.

Three parties were in the field Wednesday. The first visited two ponds in Caswell Plantation, some fifteen miles below Van Buren, as well as collecting somewhat by the roadside while on the way. The ponds were small, shallow, with muddy bottoms, and surrounded by extensive bogs. Besides the usual *Chamaedaphne-Ledum-Carex* formation there were large amounts of *Andromeda glaucophylla*, *Carex limosa*, *C. oligosperma*, *C. paupercula*, var. *irrigua*, *Kalmia polifolia*, *Nymphaea microphylla*, *N. rubrodisca* and *Scirpus pauciflorus*. A second and larger party went by train to Grand Falls, N. B., visiting the falls and gorge of the St. John River. Here on limey slates grew *Anemone multifida*, *Artemisia canadensis*, *Carex capillaris*, var. *elongata*, *Cryptogramma Stelleri*, *Erigeron hyssopifolius*, *Primula mistassinica*, *Senecio Balsamitae*, and *Tofieldia glutinosa*. The third party ascended Hammond Brook for a short distance, finding *Asarum canadense*, *Botrychium lanceolatum*, var. *angustisegmentum*, *Carex retrorsa*, var. *Robinsonii*, *Polystichum Braunii*, *Pyrola asarifolia*, *P. minor*, and *Viburnum pauciflorum* in the rich woods.

Most of the party spent Thursday forenoon caring for the material collected on the previous day. In the afternoon there was a drive northward along the main road beyond Keegan, with opportunity for visiting the cultivated grounds, river banks and low woods. Characteristic of the roadsides and fields were *Campanula rotundifolia*, *Gnaphalium sylvaticum*, *Hieracium pratense*, *Rhinanthus Kyrollae*, and *Silene latifolia*; along the river bank, in addition to plants seen before, there were *Amelanchier Bartramiana*, *A. laevis*, *Carex Tuckermani*, *Equisetum palustre*, *E. pratense*, *Hierochloe odorata*, *Polygonum amphibium*, var. *Hartwrightii*, and *Salix balsamifera*. A small station for *Dicksonia punctilobula*, which seems to be very uncommon in Aroostook County, was also found.

The business meeting was held at 7.30 P. M.; previous to the formal program, as announced, Miss Elsie L. Shaw exhibited a large series of her beautiful water-color paintings of native wild flowers. These were admirably drawn and colored, and the members present took great pleasure in examining them.

The Secretary stated that he had received a letter from Mr. Robert A. Ware, of Boston, who wished the Society a most successful meeting and expressed much regret that he could not be present.

Mr. Merrill's very interesting paper upon the "Economic Uses of Lichens" was read by Mr. Knowlton. Dr. Fellows and Mr. Chamberlain illustrated informal talks upon the ferns and mosses by specimens collected during the meeting and pointed out the distinguishing marks of the various kinds.

Train connections compelled several members to leave Friday morning, but those remaining enjoyed an all-day drive, with picnic lunch, in the vicinity of Van Buren and along the Caribou road. The most interesting collections were more fruiting material of *Calypso*, and a few clumps of *Viola scabriuscula*.

The final business meeting, with the election of officers for the following year, took place Friday evening. The balloting resulted in the following election:

President—Mr. Edward B. Chamberlain, Round Pond.

Vice-President—Mr. Arthur H. Norton, Portland.

Secretary—Dr. Dana W. Fellows, Portland.

Treasurer—Mr. Ralph C. Bean, Clinton.

Committee of Arrangements—Mr. Edward B. Chamberlain, Round Pond; Dr. Dana W. Fellows, Portland; Mr. G. K. Merrill, Rockland.

Committee on Plant Distribution—Dr. Merritt L. Fernald, Cambridge, Mass.; Dr. Dana W. Fellows, Portland; Miss Lena Willis, Naples; Mr. Arthur H. Norton, Portland; Mr.

Clarence H. Knowlton, Hingham, Mass.; Mr. Edward B. Chamberlain, Round Pond.

Committee on Bryophytes—Prof. J. F. Collins, Providence, R. I.; Mr. Edward B. Chamberlain, Round Pond.

Committee on Plant Lore—Mrs. Jennie M. Morrell, Gardiner.

At the close of the business a census of species seen or collected was taken, which showed that a total of 431 species of flowering plants or ferns had been collected during the meeting, or reported upon good authority. In thus going over systematically the check-list of species, the absence or rarity of certain plants became especially noticeable. In some cases these are weeds that, while common in southern Maine, have apparently not yet reached northern Aroostook County. In many other cases Van Buren is outside the range of the species as given in current manuals. Mention is made here of these plants to emphasize the difference in the aspect of the flora, and partly to aid in fixing the date of the introduction of well-known weeds. No claim at completeness is made, but the following species were not seen during the meeting by any member: *Ambrosia artemisaefolia*, *Andropogon scoparius*, *Betula populifolia*, *Carex scoparia*, *Cuscuta Gronovii*, *Daucus Carota*, *Juniperus communis*, var. *depressa*, *Myrica asplenifolia*, *Potentilla canadensis*, and var. *simplex*, *Spiraea tomentosa*.

It was voted that the Society issue a Bulletin for the current year to contain a synopsis of proceedings of meetings since the last issue, a list of members, and reference to such collections as seem worthy of notice.

Report of Committee on Plant Distribution.

The Committee on Plant Distribution, which was appointed several years ago, has undertaken the preparation of an annotated list of Maine plants.

The collections of the members of this Society at its meetings in various parts of the State, and some large and important additions of Maine plants to the Herbarium of the New England Botanical Club, afford many new species, as well as many extensions of range for the basis of such a list, but, while much has been done, it is not possible for the committee to make any complete or full report at this time. Work is progressing at the Gray Herbarium and the Herbarium of the New England Botanical Club, and much has also been accomplished by the various members of the committee in several important collections in the State, especially in the Herbarium of the Portland Society of Natural History and in that of Bowdoin College. Material is scattered, in many instances not easily accessible, and the time that the committee can devote to the work is limited. These conditions render progress somewhat slow, but the part of the work already practically completed includes the fern plants the pond weeds, and all the grasses and sedges. These families offer some peculiar difficulties, as they include plants which are not as often recognized and collected as are those of most other families.

The co-operation of members of the Society, and others, is earnestly desired in determining the range of rare or unusual species.

Notes on the Primitive Uses of Lichens.

By George K. Merrill.

A story of the edible species of lichens would be an interesting one, but may be only touched upon in the brief time at our disposal. First in ecomomic importance to the races of mankind may be considered the omnipresent *Cladonia rangiferina* and allied species, of the temperate and sub-arctic regions of our earth. These lichens, while common in our State of Maine, in northern countries find a greater stature, a more impressive development and a surpassing abundance. Chief among peoples making use of such lichens in their domestic economy are the Laplanders. Linnæus, in the story of his journeyings in that desert land (the *terrae damnatae* of other visitants), feelingly observes on the forbidding character of the country, and on the absolute dependence of the inhabitants on the vast areas of "reindeer moss" and other lichens for their very existence, for such furnish the reindeer's food. The narrative informs us: "The reindeer not only supplies the Laplander with milk (from which no less than nineteen different dishes are prepared) and flesh, but its skin supplies clothes, beds, bags, purses and a variety of domestic articles too numerous to mention." Another writer, in speaking of *Cetraria Islandica*, or the "Iceland moss", mentions that it is collected in great quantities throughout the northern countries, dried and pulverized and made into a palatable bread, pottage and various other dishes. Thus it may be seen that humble lichens play a part of the greatest importance in certain lands, and permit of the persistence and political integrity of entire nations.

Other species of lichens have proved of worth in their direct ability to sustain life. *Lecanora esculenta* and *Lecanora affinis*, found in northern Africa and in the desert regions persisting from that part of the world eastwardly through Arabia and northeasterly to Tartary, may be mentioned. It is said that these plants have at various times and places appeared suddenly (it is asserted by the inhabitants from the heavens) and covered with a layer from three to six inches thick large areas of the country. In times of scarcity the inhabitants have imitated their domestic animals and converted them into food. These so-called showers have been designated by the recipients as "manna", and certain speculative writers have endeavored to correlate such with the "manna" supplied to the children of Israel while journeying in the wilderness. This "manna" is usually found in the form of small lumps, from the size of a pinhead to that of a pea or small nut. Analysis reveals an enormous percentage of oxalate of lime in its composition and no starch. Persistence in the use of such a food must have only an unhappy effect. "Manna" showers falling in the Crimea afforded on analysis of individual lumps a normal percentage of starch, and sheep would eat it with avidity and no evil consequences. We have no "manna" in America, but a larger and coarser plant of the arid bad lands of some of the States bordering the Rocky Mountains to the east, is always free, and is known as *Lecanora Haydeni*. This lichen, like the "manna," sometimes is found in considerable quantities, but, so far as is known, it has never been experimented with as an esculent.

Another genus of lichens of wide distribution in temperate and arctic latitudes affords several species that in times of stress to starving explorers, have furnished something to keep intact the thread of life. These plants belong to the genus *Umbilicaria*, and in appearance present a large leaf-like expansion of vegetative substance attached to the rocky substratum by a single central process. The term "*Tripe de Roche*", or "rock tripe", has been applied to the plant by the arctic explorers. Canadian trappers and others divested of their supplies by accident or the complete consumption of such, have subsisted on the plant for greater or less periods. It is related, however, that recourse is made to the lichen only when every means of satisfying hunger has vanished. The penultimate dish of the menu forced upon the unfortunate men seems to have been their boots, then comes the "rock tripe". The *Umbilicarias* contain quantities of starch, but also hold a bitter principle with active purgative properties. Various attempts have been made by the users of the lichen to eradicate this objectionable feature before cooking, but without success.

Various arctic travellers have described the effect of a lichenose diet. One man speaks of the continued sense of hunger after partaking heartily of the *Umbilicaria*, saying, "it seemed impossible for me to continue to live and be so hungry, yet for weeks it furnished my entire subsistence".

Throughout that portion of the world where nature is most ungenerous, in high northern and southern latitudes various other species of lichens have at times been employed as substitutes for more satisfactory food substances by both man and the beasts. But the results are unfortunately negative for good with the exceptions herewith mentioned of the employment of *Cladonia rangiferina* and *Cetraria Islandica*.

The ancients, however, found in lichens, or conceived that they did, other virtues than edible ones, and for many hundreds of years certain species enjoyed much favor from supposed medicinal properties. Notable among the remedial agencies of the middle ages is the lichen now known as *Peltigera canina*. Preparations produced from this plant known as "*pulvis antilyssus*", or "*pulvis contra rabiem*", were indicated with the utmost faith for persons bitten by a mad dog. The great Boerhaave jokingly asserted of this remedy that if it was administered with success it would merely affirm that the dog was not mad. Another eminent physician questioned if the concomitants of the remedy, bleeding, pepper, cold bathing and violent massage, might not be in truth the saving principle. In any event, to us at this day the secondary treatment seems fully as formidable as the bite. Another *Peltigera*, now called *P. aphthosa*, long remained in the Swedish dispensatory, and still retained its great repute after its removal from that august compilation. Preparations from this plant were prescribed for the thrush in children. It was also indicated in cases of intestinal and stomach worms, and Linnæus himself is said to have on several occasions acknowledged its efficiency.

Yet another antique remedy of general use was the "*muscus pulmonarium*", or "lungwort", to which the scientific name of *Sticta pulmonaria* has been given. Prescribed for pulmonary diseases, many cases of cure were asserted for the remedy, but medical science now insists that the effect of the preparation was merely that of a palliative. In the medicine of mediæval times, the last mentioned lichen and many others were used to a surprising extent. To the degree in which the plant tasted bitter, the amount of mucilage that it would yield on boiling, the color of that solution, the color and shape, and the place of occurrence, were attributed the many supposed remedial virtues. One of the celebrated remedies of ancient days was the "*usnea cranii humani*", a lichen found on old bones, particularly the human cranium. The preparation from this plant was indicated for diverse maladies of mysterious source and impossible diagnosis. What a hopeful view of his disease the poor patient must have received, if the source of the remedy was disclosed to him. Another favorite remedy employed to produce sleep, stop vomiting, restrain fluxes and strengthen the stomach was a vinous infusion of

Ramalina Arabum. To our mind a vinous infusion of most any thing would produce similar results if enough of the vinous stuff was incorporated. The "cup mosses", species of *Cladonia*, enjoyed repute as a specific for coughs. It was prepared as a decoction, or as a syrup, or merely powdered. The remedy is to this date one of the simples employed by the peasantry of Europe. The yellow *Theloschistes parietinus* was used to relieve jaundice, its employment probably prompted through adherence to that peculiar form of insanity known in the middle ages as the "doctrine of signatures".

Many other lichens played a part in the herbals of those times, with a variety of applications and uses. Happily for the doctors, these and the herbs and weeds known to our grandmothers are now relegated to oblivion.

The most valuable economical application of the lichens has been in relation to the arts. The capacity of certain species to yield dyes has long been known and the knowledge formerly generally employed. The species of many genera contributed to the dyer's uses, and some of the colors were superbly handsome. It would appear that the extraction of dyes from lichens was of very ancient origin, for seemingly the process or results was alluded to by Dioscorides, Theophrastus and Pliny. These allusions were only fragmentary and unscientific, however, and it was not until the beginning of the seventeenth century that any classification or literature appears. It is unquestionable, however, that throughout the dark ages, and from time immemorial, the common people of many countries were acquainted with primitive methods of extracting the dye, and its easy application to their uses. The basis of the pigments is said by Lindsay to have been derived from the joint action of the atmospheric air, water and ammonia on certain colorless nitrogenous organic acids. These acids, from the names of the genera in which they have been first or chiefly found, are denominated Orcellic, Lecanoric, Gyrophoric and Evernic. The production of the pigments seem to have had its genesis in connection with the admixture of alkaline bases by a process of oxidation. The manufactured products of the early dye merchants were known by the names of "Orchill", "Cudbear" and "Litmus," of which the first was English, the second Scotch and the last Dutch. Fundamentally the material was identical, but the various manufacturers, by the incorporation of different alkalies in varying quantities, were enabled to produce a complete gamut of colors. Primarily the lichen afforded on ammoniacal maceration in its simplest form one color constantly and this a purple. But reds, blues, yellow and browns and a considerable number of shades and nondescript tints were obtained by chemical combination. With the primitive methods employed by the European peasantry it was not easy to predict just what color would follow their operation, and particularity in manufacture received no attention. When in the course of time the dyes became a matter of commerce, study and more exact methods led to a greater degree of precision in results, and enhanced reputation for the product. The rationale of their manufacture may be briefly stated. First the lichen was powdered, then mixed with water. To the resultant pulp was added some form of ammoniacal solution, and the whole mass put aside for maceration in a moderately warm situation and for a varying period. At the end of the season of curing, the mass had assumed a beautiful purple color. It was then distributed to the trade in that form or dried to a powder or made into cakes. The purchaser made an aqueous solution of his dye and in connection with the mordant favored proceeded with his coloring. The genera of lichens producing the more valuable dyes are known to have been *Roccella*, *Lecanora*, *Umbilicaria*, *Parmelia*, *Urceolaria*, *Physcia*, and *Ramalina*, and in the order enumerated is set forth their relative value.

The first genus, that of *Roccella*, is the one of greatest repute among the old-time dyers and was commonly known as "Orchill" or "orchella weed". The process of preparing the dye was maintained a profound secret by its discoverers, a family of Florentines. Sufficient quantities of the unmanufactured orchill were not to be procured in the countries adjacent to Florence, and Africa, the Levant, and later the Azores, Madeiras and the East Indian Islands came to be the source of supply. The history of commerce affords no more romantic episodes than the dispatching of the miniature ships of those days on voyages of long duration and covering thousands of miles, with no other purpose than the accumulation of a plant with absolutely no other use or importance.

Of the second genus affording dye lichens that of *Lecanora* is the one from which the "cudbear" of commerce was obtained, and this principally from *Lecanora tartarea*. Any one of a number of other species served as well, however, the tinctorial qualities apparently being best conserved by such plants as were possessed of a thickened, variolose, sorediiferous or tartareous thallus. *Lecanora tartarea*, common in Norway, Sweden and the north of Europe, was found rather abundantly in Scotland, and was imported from Africa and the same islands producing the "orchella weed". The process of manufacturer was the same, and the results little different from those produced from "orchill". Alas for the old days of "crottle", "cudbear", "graith", "litpig" and "orchella," the progress of modern chemistry with its marvelous discoveries among the coal tar derivatives, has forever put the lichen dyes out of business.

Hundreds of other uses were in remote times found for the lichens. The mummies of Egypt have been found with species of *Usnea* incorporated within their wrappings. The explanation for this use is wanting, except it be conjectured that the stuff would make excellent kindlings when the final translation was consummated.

Sticta pulmonaria has been made to furnish the bitter principle of an excellent beer manufactured in Siberia. *Evernia vulpina* or "wolsfbane" as this name implies, was much employed at one time to destroy the wolf. A certain amount of powdered glass was introduced into the lethal mixture, however, and it is safe to say that the glass was fully as noxious as the other element.

Species of *Usnea* and *Ramalina* have furnished tremendous quantities of a toilet preparation much used in former times, called "*poudre de chypre*", made up into a sort of sachet powder. Other species have been employed in tanning, and various gummy derivatives have been used in making pasteboard, parchment, and in weaving and calico printing. No extended use of lichens in a commercial way has ever prevailed in America. The early settlers did, however, bring their "dye-pots" with them, and a tradition of my own family unmistakably points to the use of crottle dyes.

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July 25, 1914.

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CONTENTS.

WATERVILLE MEETING, ... 3

WELLS MEETING, ... 6

List of Plants Discussed by Dr. M. L. Fernald, . 8

Some Profitable Lines of Botanical Activity, by Dr. M. A. Chrysler, ... 9

Intensive Collecting, with a Lichenological Illustration, by George K. Merrill, . . 14

GREENVILLE MEETING, ... 22

KINGFIELD MEETING, ... 26

Notes on Some Interesting Maine Lichens, by George K. Merrill, ... 31

FRYEBURG MEETING, ... 33

LIST OF MEMBERS, ... 38

ANNUAL MEETINGS, ... 40

ANNUAL MEETINGS BY COUNTIES, . . . 41

Waterville Meeting, August 10-13, 1915.

By Ralph C. Bean.

There are several reasons which led to the selection of Waterville as a place for a field meeting. It occupies a central position and is easy of access from all parts of the state. But the chief reason is that it has always furnished interesting and unusual plants to the botanist. In fact, the Josselyn Society excursion in 1898 was at Waterville and a number of interesting discoveries were made. This year we were in a way unfortunate, as the meeting had been preceded by several weeks of rainy weather. Hence we found the water high everywhere and the clay roads in poor condition.

Tuesday afternoon the party explored the ledgy banks of the Kennebec on the Winslow side, and the following morning the exploration was continued from the Mills to the Falls and to the mouth of the Sebasticook. The river was so high that there was very little level beach, but the ledges, with their hollows and irregularities, afforded good collecting, especially where water trickled slowly from a springy bank above. The underlying rock is Silurian clay slate, which has enough lime in its composition to furnish a congenial habitat for calciphile plants. Where the springs kept these ledges moist were found *Lobelia Kalmii* L., *Carex aurea* Nutt., *Rynchospora capillacea* Torr., var. *leviseta* E. J. Hill, and in one locality *Tofieldia glutinosa* (Michx.) Pers. Along the ledges were also found *Sporobolus Richardsonis* (Trin.) Merr, *Muhlenbergia racemosa* (Michx.) BSP., and *Deschampsia caespitosa* (L.) Beauv. In pools in the ledges were found *Potamogeton dimorphus* Raf. and *P. pusillus* L. Characteristic of the ledges here is *Aster vimineus* Lam., var. *saxatilis* Fernald. *Juncus Dudleyi* Wiegand was also found along the river and *Andropogon furcatus* Muhl. Among the ferns recorded from the upper banks and woods were *Dicksonia punctilobula* (Michx.) Gray, *Aspidium noveboracense* (L.) Sw., *A. cristatum* (L.)

Sw., *A. spinulosum* (O. F. Muller) Sw., var. *intermedium* (Muhl.) D. C. Eaton, and *Osmunda Claytoniana* L. *Cystopteris bulbifera* (L.) Bernh., which was collected here on previous seasons, was not in evidence.

A visit was also made to the island in the Kennebec at Fairfield, where on the ledges grow *Aster linariifolius* L., *Senecio Balsamitae* Muhl., *Prunus pumila* L., *Potentilla tridentata* Ait., *P. fruticosa* L., *Solidago racemosa* Greene, and *Houstonia longifolia* Gaertn.

The banks of the Kennebec back of Colby College were scoured for plants. The flora is somewhat similar to the Winslow side but less varied. Here were secured *Solidago squarrosa* Muhl., *S. racemosa* Greene, *Aster linariifolius* L., *Andropogon furcatus* Muhl., and *A. scoparius* Michx., var. *frequens* Hubb.

On the 12th the party explored Messalonskee Lake in a motor boat, but the water was so high that the swamp at the lower end in Belgrade was several feet under water. *Cephalanthus occidentalis* L. was found with only a few heads above water. A number of plants were secured, but nothing out of the usual, as *Scirpus pedicellatus* Fernald and *Cornus alternifolia* L. f. In the rich woods along the lake was found the usual rich woods flora.

A bog a short walk from Oakland station proved a much more fruitful field. Here was found characteristic peat bog vegetation surrounding a small pond. Among the inhabitants were *Decodon verticillatus* (L.) Ell., *Calopogon pulchellus* (Sw.) R. Br., *Habenaria blephariglottis* (Willd.) Torr., *Rhododendron canadense* (L.) BSP., *Ledum groenlandicum* Oeder, *Andromeda glaucophylla* Link, *Kalmia polifolia* Wang., *Vaccinium Oxycoccus* L., *Sarracenia purpurea* L., *Eriophorum virginicum* L., and *Rynchospora alba* (L.) Vahl. Along the woods here was found *Asplenium acrostichoides* Sw.

On the next day when it was not raining woods in Winslow were visited. The list includes *Polystichum acrostichoides* (Michx.) Schott, var. *incisum* Gray, *Brachyelytrum erectum* (Schreb.) Beauv., *Adiantum pedatum* L., *Solidago latifolia* L., *S. caesia* L., and *Polygala paucifolia* Willd.

Several of the party on Saturday morning visited woods at Cushman's in Winslow and reported, among other things, *Phegopteris hexagonoptera* (Michx.) Fee., *Carex plantaginea* Lam., *Orchis spectabilis* L., *Dentaria diphylla* Michx., *Rubus occidentalis* L., *Dirca palustris* L., and *Solidago caesia* L.

Large oak trees along the river in Winslow were the *Quercus macrocarpa* Michx., which seems to be the only white oak in this clay slate area, with *Quercus rubra* L. as the only other oak represented.

1916.

The Wells Meeting.

BY ARTHUR H. NORTON.

The twenty-second annual meeting of the Josselyn Botanical Society was held at Wells, Maine, August 8–11, 1916, with an attendance of twenty-six, including several members of the New England Federation of Natural History Societies, which held a part of its summer meeting with the Josselyn Society. Headquarters were at the Elm Hotel.

A meeting was held in the evening of the 8th, and after the transaction of business, Dr. M. L. Fernald presented a list of twenty-two plants recorded from southwestern Maine, but of which no specimens from the state are known to be in existence. Dr. Fernald exhibited representatives of all these species, and called attention to their distinctive features, habits and places of growth, for the purpose of helping members in a search for them. This list appears beyond, and it is here emphasized that information on the discovery of any of these plants in the state will be welcomed by the Secretary of the Society, or the Portland Society of Natural History, at Portland, Maine.

Several members who had arrived early had made short excursions to the salt marshes, where their presence proved unwelcome to the non-opulent landlords. Nevertheless their prompt and cautious retreat was not without the spoils of victory, including *Triglochin palustris*, *Distichlis spicata*, *Puccinellia maritima*, *Scirpus occidentalis*, and on the higher ground *Carex Muhlenbergii*, and by the roadside near the hotel *Scleranthus annuus* and *Veronica longifolia*.

August 9th. A drenching rain prevailed throughout the forenoon, with heavy showers in the afternoon. Parties of collectors ventured forth to the woods near the hotel, and various points as far as York Beach. Among the plants collected were *Panicum Scribnerianum*, *Carex Muhlenbergii*, *Carex cephalophora*, *Galium Aparine* (the woodland form), *Satureja vulgaris*, *Pycnanthemum muticum* (new to Maine), *Krigia virginica* and *Cirsium discolor*, the latter one of the previously unsubstantiated species, together with a considerable number of lichens.

In the evening a meeting was held in the hotel annex, when a paper by Professor M. A. Chrysler, entitled "Some Profitable Lines of Botanical Activity," was read by the Secretary, Dr. Dana W. Fellows. A second paper was read by Mr. George K. Merrill, entitled "Intensive Collecting, with a Lichenological Illustration." Both of these papers appear beyond. Mr. Edward B. Chamberlain gave a talk on "Mosses," illustrated with freshly gathered specimens. The meeting was then given over to an exhibition of the day's collections and a discussion of the specimens.

August 10th. Though several parties were formed for the day, the leading event was the formation of a party of four for an all-day trip to Alfred and Lyman, in a determined and partly successful search for some of the unsubstantiated species. In a woodland sphagnous swamp, with water often knee deep, though also on much drier ground, was found the remains of a once large area of **Chamaecyparis thyoides*, associated with *Picea rubra*, *Tsuga canadensis*, *Pinus Strobus*, *Chiogenes hispidula*, *Vaccinium corymbosum*, **Ilex laevigata* and *Nemopanthus mucronata*. Residents stated that the "cedar" (which is still common there) had been cut out a few years previous, and upwards of a hundred cords marketed. Other more or less noteworthy plants collected on this trip were *Juncus canadensis*, var. *subcaudatus*, *Quercus coccinea* (rare), *Quercus velutina* (rather common), *Helianthemum canadense*, and *majus* (abundant in dry, sandy roadsides), *Rhus Vernix* (frequent), *Nyssa sylvatica* (rare), *Sericocarpus asteroides* (frequent) and *Liatris scariosa*. Emulous of this success, a large party visited the cedar swamp the following day.

August 11th. Besides the party which went to Lyman, trips were made to Drake's Island, a sandy point of sea beach nearly surrounded by salt marshes, and to Cutts and Gerrish Islands in Kittery. Among the plants collected at Drake's Island or on the adjacent salt marshes were *Juniperus virginiana*, *Phragmites communis*, *Smilax rotundifolia*, *Salicornia mucronata*, *Polygonum ramosissimum*, var. *atlanticum*, *Arenaria peploides*, var. *robusta*, *Sassafras officinale*, var. *albidum*, and *Clethra alnifolia*. The Cutts and Gerrish Islands party returned with *Sassafras officinale*, var. *albidum*, *Vitis novae-angliae*, *Lythrum Hyssopifolia* and *Myosotis scorpioides*.

*Denotes species previously unsubstantiated by known specimens.

List of Plants Discussed by Dr. M. L. Fernald.

(Compiled by the Secretary, Dr. Dana W. Fellows.)

*Chamaecyparis thyoides.
Anychia canadensis.
Ranunculus fascicularis.
Anemonella thalictroides.
Magnolia glauca.
Menispermum canadense.
Cardamine bulbosa.
Drosera filiformis.
Cassia nictitans.
Crotalaria sagittalis.
Tephrosia virginiana.
Desmodium rotundifolium.
    bracteosum.
    marilandicum.
Lespedeza procumbens.
*Ilex laevigata.
Ilex opaca.
Vitis aestivalis.
Hibiscus moscheutos.
Viola pedata.
Ludvigia alternifolia.
Chimaphila maculata.
Leucothoe racemosa.
Vaccinium stamineum.
Gaylussacia frondosa.
Sabatia stellaris.
Plantago virginica.
Vernonia noveboracensis.
Aster tenuifolius.
Sericocarpus linifolius.
Bidens laevis.
*Cirsium discolor.

*Indicates species found during the meeting.

Some Profitable Lines of Botanical Activity.

BY M. A. CHRYSLER.

It is with pleasure that I accede to the request of your committee by contributing a short paper, if only to show that I take an interest in this veteran scientific society and appreciate the work it has done for our favorite science.

It is my purpose to suggest a few of the lines of botanical inquiry which may profitably be pursued by members of the club. In undertaking this I realize that there is considerable danger of being counted a meddlesome fellow. Everybody knows that a pedagog has a deeply grounded didactic instinct and is fond of setting other people to work, so I hope that the word "suggestions" may stand on the label of this sheet in big type, so to speak.

Let us recall first the familiar fact that botany may be to one of us a vocation, to another an avocation—we may be professionals or amateurs. This at once determines in some cases the phase of the subject which engages our chief attention. For instance, at a state university it is necessary to cultivate those branches which form the basis of agriculture, forestry and other applied subjects. These branches include plant physiology, identification and ranges of trees, morphology and habits of fungi, and the only partly organized principles of breeding or genetics. On the other hand, a man to whom botany is an avocation is generally a free lance, at liberty to ramble wherever his tastes lead. But to a certain extent we may all claim this privilege, for the teacher of botany may surely ride his botanical hobby, at any rate in the summer time.

Unless I mistake, the line which is pursued by the majority of members of the club is systematic botany. What is the outlook for this aspect of the subject? I think we must all admit that this part of the subject is not so popular as it once was. Mr. A. S. Hitchcock, of the U. S. Department of Agriculture, in his inaugural address as President of the Botanical

Society of America, undertook to tell the members why this is the case. Without attempting to rehearse in detail his excellent address, which has been printed in *Science*, I may say that he attributed the decline of systematic botany to the rise of experimental science and the impatience of the modern youth with any branch which cannot be cultivated by this method. He also mentioned the effect of the introduction of the compound microscope and the tendency to run after novelties. Whatever are the contributing causes, we cannot but regret that the average college graduate of to-day, after specializing in botany, is not only unfamiliar with the flora of his home county, but is unable to recognize the common plants which may be sent in for identification.

One thing, however, the systematic botanist can learn from present-day tendencies, and that is the importance of specialization. One of my predecessors in office was what might be called a naturalist; he assembled a valuable collection of higher plants, made some studies of fungi, dabbled in mosses and lichens, wrote bulletins on insect and weed pests, and left to the institution an interesting collection of fossil plants. I think we will all agree that the man who nowadays leaves a footprint on the sands of time is the man who devotes himself to the development of some one aspect of his subject. I by no means deny the importance of a balanced training, nor would I advocate too early specialization, but I believe that the members of this club will best advance our science by making themselves master of some aspect of the subject or some group of plants. Let us acquire a reputation for expert knowledge along some line. In this connection it is pleasing to observe that some members of the club have distinguished themselves in the way suggested. One of the practicable lines of inquiry is that of the geographical range of individual species, with a study of the conditions that have probably determined such distribution. Such work, while beginning with exact determination of species, leads to what is now called ecology. I fully realize that many of us have been studying ecology for years, only we did not call our work by that name. The day seems to be at hand when scattered observations are to be woven into the fabric of what may properly be called a science. One aspect of ecology which has specially appealed to me is the physiographic, and I venture to sketch an experience of a few years ago in order to make clear what I mean by the term "physiographic."

I was spending a month on a beautiful island near the eastern shore of Lake Huron, one of the Oliphant Islands. This island was beautiful largely because it had been left alone for the most part, and had not been grazed by cattle or even pawed over by very many bipeds. A few of the more attractive plants observed were *Castilleja coccinea* (very abundant), *Primula farinosa* (on the limestone shores), *Hypericum Kalmianum*, *Corallorrhiza striata*, *Parnassia palustris*, *Juniperus horizontalis*. On an adjacent island my attention was attracted by *Utricularia cornuta* and *Calopogon pulchellus* on the sandy shore. In the shallow water adjoining was an extensive society of *Scirpus*, probably *occidentalis*, while back from the shore a series of zones of certain grasses and sedges made their appearance, leading back to groups of *Larix* of increasing height up to twenty feet, mixed with smaller numbers of *Thuja occidentalis* and *Betula populifolia*. A further examination showed that the area in question was really a flat neck joining two islands, and inquiry elicited the report that these two islands had been entirely separate twenty years ago. A consideration of the available evidence, derived chiefly from the vegetation, showed that by the accumulation of sediment the two islands had become connected at a certain point, and that the neck so formed had extended at a rate which could be calculated within narrow limits. It was also apparent what plants had been instrumental in these changes, what plants had been pioneers in the succession of vegetation on the area, and what plants had followed in the same area as the substratum became drier. It was natural to seek an explanation for the differences between the arboreous vegetation of this neck and of the adjacent islands, but I shall not weary you with further details, for the object of this illustration is to show what is meant by physiographic ecology, and to suggest that many of us will find that well-known regions take on a new interest when examined in this light rather than merely as areas where new species may be run to earth. In an area such as the one mentioned a number of interesting questions present themselves, and in order to furnish a satisfactory answer a person will be obliged to call into use his knowledge of related sciences as well as of the habits of the plants found.

It may be well to remark before passing on that I am well persuaded of the importance, in such studies as these, of accurate determinations of the plants concerned, and of the deposit of the plants in some accessible collection, should any account be published.

Turning from these fields of taxonomy and ecology, we may call attention to other possible directions for our energies. For those of us who are the fortunate owner of a microscope an endless new field is opened. Let us remember that the great Hofmeister made his pioneer researches on the morphology of gymnosperms during the time he snatched from his business as a bookseller. Microscopes have vastly improved since his day, and the technique has recently been enriched by great improvements in the celloidin method of imbedding, so that now all parts of the plant may be examined microscopically, including the hardest—even *lignum vitæ* and anthracite coal have at last succumbed to the histologist. In this branch, as in the others, one must specialize in some group or organ or tissue in order to produce results worth while.

Plant physiology presents a large and largely unexplored field for investigation. Especially in this country are the laborers few. It does not adapt itself well to the independent worker, because of the rather extensive laboratory equipment required.

The study of genetics has become quite popular during the last few years and threatens to entice some good workers from other departments of our subject. Since Mendel's painstaking observations—on plants, let us remember—have been rescued from oblivion in 1900, astonishing progress has been made in our knowledge of inheritance in plants and animals. To engage in this work all the equipment which is necessary is a garden or greenhouse, a pair of good eyes and plenty of patience. The bearing of this line of investigation on the concept "species" should be borne in mind. As the idea dawns on us that plants are changing surely if slowly (perhaps rapidly in some cases), we see that type specimens are increasingly difficult to define, and the Linnæan idea of fixity of species must be abandoned.

Before closing let me refer to two practical matters. As far as I know, this state does not boast a single botanical garden. No doubt our climate forbids such extensive gardens as are found in milder regions, but for purposes of general education there ought to be a living collection of the plants which can be grown in this region. Manifestly this ought to be situated where there is a botanist, preferably in connection with an institution of learning, or else near a city. Closely related to a botanical garden is a *hortus siccus*. I suppose all members of our club know that at the State University an herbarium is located, one of the departments of which is a collection of the plants of the state. Although this is in a fairly satisfactory condition, I regret to say as curator that only too often I find gaps in this collection. It seems to me that it would be an entirely possible scheme for the Josselyn Botanical Club to make this collection truly representative, by sending in specimens from any part of the state in which they happen to be collecting. I take the liberty of making a hearty bid for your co-operation in this matter.

In conclusion, let us keep in mind the dignity of our subject. While I was studying at the University of Chicago, I overheard a remark which has, so to speak, "stuck in my crop" ever since. A young medical student was heard asking one of the librarians, "Who is that fellow who just took out those books? What is he studying?" The librarian replied that the person was studying botany. "Well," commented the embryo doctor, "I can't see why a *man* should study such a subject as botany!" When we recall that our subject has made valuable contributions to medicine and to art, and that it is at the basis of permanent agriculture, that plants literally feed the world, we need offer apologies to no one, but go on our way with much content.

Intensive Collecting, with a Lichenological Illustration.

By GEORGE K. MERRILL.

Many years since, on a beautiful spring day, in company with an agreeable but somewhat infirm old gentleman, the writer sallied forth on a botanical ramble. A short tramp from the point of our alighting from the "horse cars" brought us to a bit of woodland. My companion stopped, disburdened himself of his vasculum and coat, and gave vent to a sigh of satisfaction. "What now?" I interrogated. "I go no further," he replied. "But I believed we were to visit Warner's Lake," was ventured. "My son, visit Warner's Lake if such is your will, but I remain here, and furthermore affirm that I shall beat you on collecting results." And he made good his assertion.

My readers probably have all shared in the experience, after searching a limited area for a long time in the ordinary manner in which botanists work, of coming at last on some prized thing that one has passed and repassed many times. This plant had probably existed in the place of its finding for many years. You had simply overlooked it. In reflecting afterward on the circumstance of its discovery it likely occurred to you that had search been conducted a little more carefully in the past the plant would have shown up long before. In effect, had you, instead of a zealous effort to cover all the ground possible in your ramble, thoroughly combed the first field, or wood, or pasture, results might have been attained unbelievably disproportionate to your inertia. Search patiently in circumscribed areas, and you will come to recognize that the dogma furnishes an excellent justification for inertia. First sight of a habitat seldom reveals much of interest, but the results of re-examination, close scrutiny and exhaustive search may be surprising.

In this little paper I will endeavor to give some account of the lichens found on one tree and a fence immediately beneath it, which illustrates what really careful search may accomplish with a minimum of physical exertion.

The tree, an elm, grew by the roadside and had no immediate neighbor, large or small. It was, in fact, such a tree as a lichenologist delights in, because of the ecological problems presented. The most conspicuous lichen on our tree trunk was *Parmelia caperata*. This plant, a Linnæan species, is presented under its time-honored name, and not the one proposed by that group of lichenologists who call themselves advanced, but whose advancement consists principally of an ardent ripping up of traditions and the establishment of an infinity of new combinations. The lichen, an exceedingly common one, was observed to be growing on the easterly, northerly and southerly sides of the trunk, and one great patch more than two feet in diameter was conspicuous and recognizable from a distance. All of the plants were without apothecia—in fact, the species is seldom found in a fertile condition—and represented that phase in which the whole surface of the thallus is covered with granular soredia. Such conditions of the plant are assumed to be old or aged exhibits, and are explained by an observed tendency of the species when found in similar habitats to discontinue growth by central innovation. Growth in lichens persists throughout the whole vegetative tract, and in those species whose physiology forbids growth by central innovation, activity continues, but in a vertical direction, and in the form of soredia.

Second to *Parmelia caperata* in abundance was *Xanthoria parietina*. This plant is described under the generic name of *Theloschistes* in Tuckerman's Synopsis, and correlated with *Physcia* by Nylander. The plant is that orange-colored thing so common and conspicuous on roadside trees and walls. The coloring matter in this lichen is chrysophanic acid, present in little crystals in the cortex. Why this substance should be present in and color the thallus of *Xanthoria parietina* and some allied lichens, yet be entirely deficient in other orange-colored species, has never been explained. The peculiar fact may be noted that the species, when growing in shaded places, is often found of an ashy or gray color with the exception of the apothecia, these having a more or less normal coloration. In very damp habitats the thallus is decidedly green and the apothecia less orange than is common. In particularly exposed and arid situations, as on the summits of high hills or mountains, the orange becomes more intense, almost approaching a red. So far as I know, no one has ever investigated the ratio of chrysophanic acid presented by plants from these diverse habitats, but it would prove an interesting subject. *Xanthoria* is very closely related to that section of the *Caloplacaceae* which shall include *Caloplaca elegans*. Ten years ago, on a visit to Ragged Mountain, one of the higher summits of Knox County, a solitary specimen of *Xanthoria parietina* was found on a rock at the summit. Considerable search failed to discover another specimen. It seemed desirable to me to leave the plant undisturbed and to revisit the place at some future time to ascertain what would become of it. It was seven years later before a second visit was paid to the summit, and an amazing sight awaited. In every direction from the rock originally the seat for that solitary lichen, the plant had spread and there were hundreds of individuals. Close investigation of the society revealed another astonishing thing, and that the presence inextricably mixed with the *Xanthoria* were fully as many individuals of *Caloplaca elegans*. It was well-nigh impossible to distinguish between the two species in hand specimens. Alike in color, in a general way in thallus, and absolutely in the contents of the thecium, it seemed then, and I have not changed my opinion since, that *Caloplaca elegans* is but an anamorphosis of *Xanthoria parietina*. The establishment of the *Xanthoria* on that mountain top has not as yet been satisfactorily explained to my mind, and as a matter of fact the distribution of the plant in our city streets is obscure. It seems peculiarly to affect for its home the trunks of roadside trees, and it is commonly noted that trees some distance back from the road will support few or no examples of the plant while the trunks of the roadside ones are covered. An observation some years since illustrated what might be called a mode of vertical propagation for this species in a striking way. Beneath a tree trunk, the surface of which supported a host of individuals of the *Xanthoria*, there was a large stone. This stone was covered with species and it was perfectly apparent that the coating had been derived from a bringing down by water of fragments from the thalli above. Five feet away from the first stone, which, by the way, leaned against the tree trunk, there was another rock of the same material entirely destitute of the lichen. Another example of the distribution of lichens by water currents was once observed in the finding on the naked rocks of one of our hillsides of *Gyrophora grisea*. The colony of *Gyrophora* was along a depression in the ledges down which water found its way in times of rain. The plant was distributed along this water way for a limited distance, and was to be found nowhere else on the hill. It may be mentioned that there is no other known station for *Gyrophora grisea* in eastern America.

At the base of our elm, visible on all sides, were some magnificent specimens of *Lobaria amplissima*. It is doubtful if another specimen of the species is to be found nearer than a mile in distance, and its presence where found is a matter of much interest. The specimens were without apothecia and were greatly deformed by parasitic fungi. That the spread of the plant on this particular tree must be purely vegetative is entirely obvious.

Another lichen, *Leptogium tremelloides*, was found on the tree near its base. The specimens were unfruited, and while the species is vastly more common than the preceding, it is difficult to account for its occurrence on an isolated tree. The only lichen found on the tree with abundantly developed apothecia was *Parmelia rudecta*, and it was very luxuriant. The specimens were densely isidiose and afforded the normal reaction with calcium hypochlorite. The species is seldom found with apothecia in Knox County, and then usually in shaded situations. *Parmelia sulcata* was found infertile and appearing as if crowded. The species is very impatient of companionship and only to be found in its best development when in a somewhat isolated relationship with other lichens.

Physcia pulverulenta leucoleiptes was an inconspicuous denizen of the tree, but was found in a great number of individuals. I do not remember ever to have collected this species bearing apothecia, but in its best state, growing free from entangling alliances, it is a rarely beautiful thing. In America, where it was first detected, it exhibits great variability, but we have never dreamed of making sub-forms of its varying phases. It has remained for a French lichenist, who discovered the species in the Vosges district, to separate the plant into a number of varieties. I have personally recognized three of his variations in an individual plant, and if his remaining segregates are equally valid it will furnish an interesting exhibition of acumen gone wrong. *Physcia stellaris* is another lichen observed in limited patches. The laciniae were discrete after the manner of its variety *leptalea*, but there were no marginal cilia found, and the form is inseparable by any present criterion from the normal state. *Physcia stellaris* is a pretty and common thing and has an almost universal distribution in temperate regions. Numerous variations of the species are to be found in Knox County, including three forms unreported from America and one new and undescribed thing. The variation *aipolia* of the species occurred on our tree in the spermogoniferous state, so called, that provides its most attractive exhibit, and growing in greatest luxuriance, but not in its most attractive form, was found *Physcia tenella*. This plant, scattered all over the trunk wherever the bark provided attachment, was found in the dispersed form and again in the more typical aggregated state. Knox County has furnished the only known American example of the form *exempta* of this variation, the specimen serving to illustrate the close affinity of the variation to the type. Another *Physcia* found in limited quantities was *P. tribacia*. This interesting species is commonly found on dead wood, and the fence beneath the tree supported it. On neither tree nor fence was it found fertile, and fertile phases are not by any means common. When found on rocks it presents its most attractive appearance, and to a beginner in lichenology this condition is almost impossible of identification. The late Prof. Clara Cummings, to whom I sent a specimen of the rock form, stated: "I am not positive with regard to your plant, but by the process of elimination it must be *Physcia tribacia*."

An interesting *Pertusaria* was *P. lecanocarpa*, an undescribed species. The type of this species, likewise found on elm, finds its nearest ally in *P. multipuncta*, but is sufficiently diverse to be given specific rank. Another *Pertusaria* of common and variable appearance is the Acharian *P. amara*. This plant is indescribably bitter to the taste, and when in the field accompanied by some friend, with my resources of wit and conversation exhausted, I hunt up a specimen of the plant and suggest that he taste of it. The effect is to shift the conversational burden at once, and my companion's remarks are usually amusing if not witty.

High up on the trunk and branches of our tree occur two little *Ramalinas*, *R. calicaris* and *R. farinacea.* The first of these occurred in that dwarfed state of which it is difficult to decide whether to call it an example of the type or of its variation *subampliata.* The second is that *Ramalina* form with linear laciniae, beset here and there with rounded granulose-farinose soredia. Both are common throughout the county, and particularly does *R. calicaris* furnish a bewildering variety of forms absolutely impossible of elucidation from any published source of information. Much has been written on *Ramalina*, but no American student has tackled the subject yet in the necessarily humble spirit.

Lecanora subfusca was found in limited patches and in typical condition, and *Caloplaca aurantiaca* nestled here and there among the larger plants, its golden-colored pulverulent thallus affording a ready mark for identification.

We now come to a lichen found growing parasitically on the thallus of *Parmelia rudecta* that is of more than ordinary interest from any angle in which it may be viewed. The plant is one so near the borderland between the lichens and fungi that it has been claimed by the students of both groups. In the system of nomenclature that is here adopted, it receives the name of *Buellia parmeliarum*, but this is only one of a multiplicity of names that have been applied to it generically. It has been variously distributed in *Abrothallus*, *Epiphora*, *Karschia*, *Poetschia*, *Leciographa*, *Dactylospora*, *Lecozania*, *Lichenomyces*, *Lichenopeziza*, *Monerolechia*, *Nesolechia*, *Phaeothecium*, *Phymatopsis*, *Tricharia* and *Trichoplacia*, and so on *ad nauseam.* In connection with this matter it may be of interest to quote an opinion expressed almost sixty years ago on excessive genera making. The author quoted is W. L. Lindsay, a man of considerable attainments as a lichenist, and one of the first investigators of the lichens by microscopical methods. He says, "I must protest against the unnecessarily and mischievously elaborate classification of Koerber, who, in his last publication, enumerates in Germany one hundred and thirty-six genera, while I feel assured less than one-third would be found amply sufficient. It is this splitting up of species and genera, this multiplication of new and difficult names, this complete changing of old and familiar terms, that operate as one of the most powerful barriers to the study of lichenology.'' If any knowledge of the more than six hundred genera cited for the lichens in Engler and Prantl may have reached the heavenly abode of Lindsay's shade it must have been profoundly depressing. As before mentioned, *Buellia parmeliarum* is a parasitic lichen. There are many parasitic lichens, but this particular plant, unlike many other parasites among the lichens, emphasizes its parasitic character by the peculiarity of causing a malformation of the thallus of its host. The species occurs in this country on the thallus of *Parmelia saxatilis* most commonly, but it is often found on that of *P. rudecta*, occasionally on *P. sulcata*. Two other hosts for the plant may be mentioned because of rarity. The first of these is *Parmelia caperata*, and so far as I know the plant on this latter host has not been recognized in this country except on Knox County material. The other and remaining host plant is *Cladonia amaurocraea*, on which it has not been previously identified by lichenists. The *Cladonia* species forming its host was among specimens of that genus collected by the late Prof. Clara E. Cummings in the White Mountains. Miss Cummings was unable to make out the peculiar deformations of the podetia and passed the material along to Prof. T. A. Williams, and he called them ''galls.'' Certain little dark-colored bodies borne on the surface of the swellings attracted my attention, and I was able to demonstrate their identity with the *Pycnides*, which constitute a characteristic accompaniment of fertile *Buellia parmeliarum*. Just a few words now on the problem of whether the plant is fungal or with affinity to the true lichens. The one test that is best available in demonstrating the relations of a doubtfully lichenose thing is that of ascertaining if the organism is physiologically constituted to develop starch.

The majority of the lichens are known to contain starch in more or less appreciable quantities, but fungi do not develop such. It is debatable whether *Buellia parmeliarum* gives a starchy reaction with reagents. Personally I have never obtained a convincing reaction. Other workers claim to have observed a definite change in color on application of iodine to the hymenium. A good argument for fungal affinity is found in the definite "shoe-sole" shape of many, or in some all of the spores of a dissection. There are many parasitic things of unquestionable lichenose affinities that superficially resemble *Buellia parmeliarum*, and which in a minor way deform the thallus of their hosts.

The fence beneath our tree was a common affair of boards nailed to posts, and conspicuously bore three plants. The first of these was *Physcia pulverulenta leucoleiptes* of the neighboring tree, but in a curiously depressed form not easily identifiable. *Lecanora subfusca chlarona* was abundant and fine, and tiny patches of the orange-red apothecia of *Caloplaca pyracea saprophila* were everywhere. In addition to the foregoing, *Buellia disiformis*, *Lecidea melancheima*, *Bacidia luteola*, *Pertusaria communis* and *Parmelia subaurifera* were observed in limited patches, bringing the census of our tree and fence to twenty-two species. By going a mile further from home on a subsequent ramble, a tree was found on which were counted thirty-eight lichens. The examination of this tree consumed three hours, but the time was well spent. Give the inertia system of collecting a trial, friends, and then compare results with those of your usual Marathon methods.

1917.

The Greenville Meeting.

BY ARTHUR H. NORTON.

The twenty-third annual meeting of the Josselyn Botanical Society was held at Greenville Junction, Maine, at the southwestern extremity of Moosehead Lake, July 31 to August 4, 1917, with headquarters at the Piscataquis Exchange.

The meeting took place during a period of great heat, daily relieved by heavy thunder showers, which coursed down the lake and the Kennebec valley. Fortunately these showers were so timed that they contributed materially to the enjoyment of the grandeur of the vast wilderness of mountain-studded forest without delaying the work of collecting.

The forest appeared almost unbroken, consisting of white pine, with an abundance of red spruce, hemlock, white and yellow birch, large-leaved poplar, and in low ground arbor vitæ.

The shores of the lake were remarkably barren of aquatic plants, *Sagittarias*, *Potamogetons*, *Pontederia*, *Nymphaea*, *Nuphars* and forms usually associated with them, and the semi-aquatic heaths were almost entirely absent. This scarcity may have been due to a rather recent raising of the water level of the lake.

Another matter of interest, to be noticed again, was the scarcity of many common introduced weeds, which here were confined to the vicinity of roadsides, tote roads, and especially to the railroad tracks and yards.

July 31st. The time of arrival was late, and only a brief examination of the lake shores in the immediate vicinity of the village was made. Among the plants noted were *Sagittaria latifolia*, var. *gracilis* (very scarce), *Alopecurus geniculatus*, var. *aristulatus* (also scarce), *Carex crinita*, var. *minor* (very common), and several ample mats of *Polygonum amphibium*.

August 1st. The entire party embarked in a speedy motor boat for an all-day trip, collecting at several points along the east shore of the lake as far as Kineo Point, passing between Sugar and Deer Islands.

The first landing was made at Bolton Cove, in Sandy Bay. Here a very small colony of *Nuphar americana* and a few plants of *Potamogeton epihydrus* were found in water about six feet deep. The shore was clothed with *Carex arcta*, while in the woods was an abundance of *Thuja occidentalis*, *Ribes lacustre* and *Viola Selkirkii*. *Viburnum pauciflorum* was common and *Acer pennsylvanicum* was numerous and of large size, one tree being noted with a trunk diameter of fully six inches. Along the tote road was *Plantago major*, *Prunella vulgaris* and *Chrysanthemum Leucanthemum*.

A second landing was made at Beaver Brook, on the northeast side of Burnt-jacket. Here (where lunch was eaten), through a dry pine wood that bordered the shore of the lake, the field of an abandoned farm on the hillside gleamed forth, visible far up the lake, like a green island in a dark ocean of forest. Among the plants of this station were *Carex arcta*, easily the most abundant sedge of the lake margin, *Carex lenticularis*, *Carex Pseudo-Cyperus*, both scarce, and in the pine hemlock woods *Corallorrhiza maculata*, *Medeola virginiana;* along the lake shore *Potentilla palustris*, not common; in the old field were found *Alnus crispa*, var. *mollis*, *Corydalis sempervirens*, and by the stone wall *Galium boreale;* by the barn, where very likely planted by the robins, now gorging themselves with its rich, ripe berries, *Sambucus racemosa*.

At Kineo Point very large areas of *Polygonum amphibium* floated in the shallow water, with a dense carpet of *Potentilla palustris* lining the water's edge, and the shore was fringed with an abundance of *Juncus effusus*, var. *Pylaei*. Along the sandy peninsular of Kineo Point *Pinus resinosa* was frequently noticed, and one plant of *Carex aenea* was found; *Vaccinium Vitis-Idaea*, var. *minus*, was growing just above the water line in sandy soil; in the swampy places *Carex Tuckermani* was in great abundance.

August 2nd. The day was spent in the vicinity of Squaw Brook and in the ascent of Squaw Mountain. The rich, moist woods, of pine and arbor vitæ, along the lower section of Squaw Brook gave promise of good collecting. Here the hasty time spent in a search for the mountain trail disclosed *Epipactis tesselata*, *Epipactis repens*, var. *ophioides*, and *Habenaria obtusata*, all in abundance; *Habenaria bracteata* and *Ribes lacustre*, common, with an abundance of luxurious *Viburnum alnifolium* and frequent plants of *Lonicera canadensis*. On the margin of the brook *Sagittaria arifolia* was rare; along the trail *Onoclea Struthiopteris* was found, and an area of *Populus grandidentata* of sufficient magnitude and size to engage the energies of a crew of lumbermen was passed.

Through dependence on an inexperienced guide much time was lost, and the delayed climb of Squaw Mountain, wooded to the summit, became a painful drag beneath the brilliant August sun, and the final drenching of an icy cold thunder shower was a welcome finish.

Along the lower portion of the trail *Fagus grandifolia* was of frequent occurrence, but *Epifagus* was not observed. At higher places *Picea rubra*, *Rubus idaeus*, var. *aculeatissimus*, *Pyrus americana* and *Acer pennsylvanicum* were the dominating features of the vegetation. The one interesting find was a thriving colony of *Campanula aparinoides* about a mile above Squaw Brook.

August 3rd. The day was spent in the vicinity of Eagle Brook, the forest south of it and along the railroad tracks and yards.

In the dead water near the mouth of this brook were found *Potamogeton heterophyllus* and *Utricularia vulgaris*, var. *americana*.

In a lumber yard on its shore *Festuca elatior*, an introduction with hay. In the adjacent pasture and by the railroad banks such widely distributed plants as *Pteris aquilina*, *Clematis virginiana*, *Vicia Cracca* and *Apocynum androsaemifolium* abounded.

In the woods, largely of hemlock, *Carex tenella* and *Epipactis tesselata* (very large plants), were in great abundance, with rather less quantities of *Epipactis repens*, var. *ophioides*, and *Corallorrhiza maculata*. In mossy pockets near the borders were carpets of white violets, including *Viola pallens*, *V.*

blanda, *V. incognita* and *V. renifolia*. On the ridge separating the water sheds of the lake and the Kennebec to the southwest, three poplars were found, including *Populus grandidentata*, *P. tremuloides* and the only examples of *P. balsamifera* seen in the lake valley, though common along the railroad toward Dover.

A field of buckwheat, *Fagopyrum esculentum*, in the field on this hill side, was, with the exception of an abundance of *Brassica arvensis* (plainly introduced with impure seed of buckwheat), free from weeds. Indeed, the small fields and gardens were nearly free from the common weeds of the older agricultural districts of the state. By the roadside of the village only the common followers of hay, *Ranunculus acris*, *Hypericum perforatum*, *Carum Carvi* and *Chrysanthemum Leucanthemum* were conspicuous.

The railroad, however, afforded a number of foreign species, together with several indigenous American weeds, here clearly railroad waifs. Among those noted were *Digitaria sanguinalis*, *Poa annua*, *Rumex Acetocella*, *Mollugo verticillata*, *Spergularia rubra*, *Silene latifolia*, *Lepidium apetalum*, *Capsella Bursa-pastoris*, *Sisymbrium altissimum*, *Erysimum cheiranthoides*, and *Euphorbia maculata*.

1919.

The Kingfield Meeting.

BY ARTHUR H. NORTON.

The twenty-fourth annual meeting of the Josselyn Botanical Society was held at Kingfield, Maine, with headquarters at Hotel Herbert, July 8 to 11, 1919.

The meeting was devoted entirely to field work and the annual business of the Society, lectures and talks having been dispensed with to give all time to the collection and care of specimens.

Kingfield, which is situated in the eastern part of Franklin County, is a thriving village, made attractive by a deep civic interest and pride, evident on every hand, from the stately and immaculate Hotel Herbert to the neat and begardened homes that border its well-kept streets and roads. Affording, as it does so completely, the comforts of modern life in the midst of great forests, mountains, streams and ponds, it is destined to become an even more important gateway to the wilderness of Northwestern Maine than it now is.

It is in the valley of the Carrabassett River. This stream, with its numerous sharp turns, islands and broad, gravelly strands, is a delight to the botanist as well as the angler, and its long ranges of richly wooded, boulder-strewn hills are hardly less inviting to the former. The hard-bedded road for many miles follows the southerly bank of this promising stream, through most inviting old woods of birch and beech, occasionally emerging into narrow fields, where the roadside at this season is blue with the dainty flowers of hairbell, or as some marsh reaches back from the stream is brilliant with Robbins' *Senecio*, and the pastures are made picturesque by the abundance of white spruce.

A short walk on the evening of arrival disclosed the presence of *Equisetum hyemale*, *Glyceria laxa*, *Deschampsia caespitosa*, *Carex flava*, *Potentilla arguta* and *Viola pubescens*.

July 9th. The day was devoted to a long trip through the valley of the Carrabassett River, across Jerusalem, to Dead River, Flagstaff, Eustis, and southward around the western end of Mt. Bigelow through Coplin and Crockertown.

Stops along the Carrabassett, in Kingfield, showed the shores to be lined with *Deschampsia caespitosa*, frequent clumps of *Carex crinita* x *torta*, with an abundance of *Salix sericea*, *Salix lucida*, *Prunus pumila* and *Apocynum cannabinum*. Both species of willow presented two forms, one with shorter lanceolate leaves, the other with longer, narrower leaves. In the deeper soil of the banks *Conioselinum chinense* and *Apocynum androsaemifolium* were abundant and distributed at every point, while *Habenaria dilatata* occurred in colonies of great abundance and perfection, the leaves here being unbitten by insects, as was the case at East Parsonsfield and Cornish, where the plant was common in 1900. Associated with this *Habenaria* were *Carex flava* and *Scirpus alpinus*. By the roadside were found occasional specimens of *Apocynum medium*, and on the higher ground *Vaccinium caespitosum*. In the woods were *Viola rotundifolia* and *Viola renifolia*. Members of the party found a small woodland bog, where there was an abundance of *Carex limosa*, *Calla palustris*, *Smilacina trifolia*, *Calopogon pulchellus*, *Sarracenia purpurea*, *Drosera rotundifolia*, *Rhododendron canadense*, *Kalmia polifolia*, *Ledum groenlandicum* and *Chamaedaphne calyculata*.

A colony of *Dicksonia punctilobula* rewarded the diligent search of one member of the party. By the roadside were many plants of *Heracleum lanatum*, and an abandoned field in Coplin was completely filled with the great plants, now in full flower.

At another strand of the Carrabassett were found a few examples of *Arnica mollis*. At Bog Pond, in Jerusalem, were found *Scheuchzeria palustris*, *Eriophorum callitrix*, *Carex limosa* and *Habenaria blephariglottis*. Here *Nuphar rubrodisca* was conspicuous by its depauperate size and scarcity, while the margin of the pond was brilliant with *Utricularia cornuta*. By the bridge near Dead River post office *Potamogeton natans*, *Sagittaria arifolia* and *Carex Tuckermani* were collected, the first and last in abundance, with *Ranunculus Flammula*, var.

reptans, common. A short distance beyond this point, in a small sink hole in the first terrace of Dead River, *Scheuchzeria palustris*, *Carex rostrata*, var. *utriculata*, *Salix pedicellaris*, var. *hypoglauca*, and *Potentilla palustris* were in abundance. The road through Dead River plantation to Flagstaff passed along near the edge of a sandy, shelf-like terrace of the Dead River, and for several miles was through a forest of large red pines (*Pinus resinosa*), known as Cathedral Woods. A brief stop here yielded *Lycopodium tristachyum*, *Arctostaphylos Uva-ursi* and *Solidago hispida*.

July 10th. The day was devoted to two trips, that of the forenoon over a road along the northerly side of the Carrabassett stream, through old, rich woods, along marshy and bog-bordered streams to New Portland, through fields and open pastures, by a range of sand dunes, barren and defiant of turf, across the Carrabassett River, over sandy plains, and along its southerly side back to the point of starting.

Among the plants of this trip were *Taxus canadensis*, *Glyceria laxa*, common in the region, *Carex filiformis*, *Carex rostrata*, var. *utriculata*, *Medeola virginiana*, *Streptopus amplexifolius; Epipactis tesselata*, rare, *Quercus rubra*, frequent by the Carrabassett, *Betula populifolia*, in a grove nearly a mile long on a sandy plain in New Portland, south of the Carrabassett (also of frequent occurrence up its valley as far as Jerusalem), *Ribes lacustre*, *Pyrola asarifolia* and *Viburnum dentatum*.

The afternoon, with an accomplished local guide, was devoted to a trip to Stafford's Pond, in Lexington, for the purpose of collecting *Rhododendron maximum* at its most northerly known station. (See Cowan, 1899, Rhodora, I, 55.)

The beginning of the trail was through an old wood, in which *Fagus grandifolia* was abundant, but not a trace of *Epifagus* was found here nor elsewhere in the region. Here *Botrychium virginianum* was abundant and large, with an abundance of *Osmorhiza Claytoni*. In an abandoned field, now a pasture, were found the only examples of *Spiraea tomentosa* seen in the region, and in this pasture persisted a colony of *Potentilla recta*. On a kame at Stafford's Pond was a colony of *Botrychium simplex*, with occasional examples of

Botrychium ramosum; in a moist field near by *Ophioglossum vulgatum* was found.

On the margin of the bog at the head of the pond, where *Thuja occidentalis* and *Abies balsamea* strove for dominance, were scattered clumps of *Rhododendron maximum*, covering, as was judged, a half acre of ground. The clumps were dense and luxuriant, with many of the plants fully eight feet in height. The plants observed on this visit were in dense shade and no sign of inflorescence was to be found. In the same bog were *Glyceria pallida*, var. *Fernaldii*, *Carex paupercula*, var. *irrigua*, *Calla palustris* and *Smilacina trifolia*.

Though the official sessions of the Society closed the 10th, four members, Mr. and Mrs. R. C. Bean, Miss Sue L. Gordon and Mr. A. H. Norton, decided to devote another day, the 11th, to a trip to Mount Bigelow. The day proved to be cool and misty, but without rain, making the four-mile trip from the state fire warden's camp, on the Dead River Road, to the eastern peak most comfortable.

During the glacial gravel period the torrent of the Dead River Valley had found an eddy along the northerly foot of Mount Bigelow and deposited huge kames, flat topped and broad, but little broken by occasional peaked cones and the later local streams from the mountain side, which have cut their way across the kames in their descent to the Dead River. This sandy plain is now pastured and barren of variety, though *Picea canadensis* and *Potentilla tridentata* are conspicuous by the roadside.

Passing over this broad, sandy plain to the base of the mountain, a rich, moist soil supports a forest of large trees of *Picea rubra*, *Pinus Strobus*, *Betula lutea* and *Fagus grandifolia*, and much *Acer pennsylvanicum*, the latter small trees, some with a trunk diameter of fully four inches. After passing this ascending seepage plain and a sharp boulder-strewn pitch (perhaps the sea wall or strand of the glacial flood) was found a deep vegetable soil, relatively smooth of surface and rapidly sloping far upward to the still sharper pitches of the shallow-soil cove ledges. In this broad belt of deep soil a stately forest of red spruce and yellow birch afforded a most comfortable shade for a dense, unbroken carpet of *Oxalis Acetosella*, now in full bloom, stretching in all directions to the limit of woodland vision, well interspersed with thrifty clumps of *Aspidium spinulosum*, var. *dilatatum*, well up to the belt of ledges and dwarfing spruces. The narrow peaks are thrust well above the zone of scrub spruce and are given up to deep beds of fruiticose lichens, alpine heaths and lesser plants, a veritable "Alpine Fell Field." (See 1919, Harshberger, Geog. Bull., VII, 233, 255.)

On this peak were found *Lycopodium Selago*, rare, *Hierochloe alpina* and *Deschampsia flexuosa*, both abundant; *Carex deflexa* and *Carex brunnescens*, both common; *Juncus trifidus*, abundant; *Arenaria groenlandica* and *Potentilla tridentata*, both common; *Empetrum nigrum*, var. *andinum*, frequent; *Ledum groenlandicum*, common and dwarfed; *Vaccinium uliginosum*, in great abundance and very variable; *Vaccinium pennsylvanicum*, var. *angustifolium*, not very common. In the deeper soil, in the shelter of ledges, were *Betula alba*, var. *cordifolia*, and *Pyrus americana*, growing in dwarfed masses.

In a sag between the eastern peak and the next toward the west, within the scrub spruce zone, were *Lycopodium annotinum*, var. *pungens*, *Luzula parviflora*, and in the debris around an old camp *Poa annua* (a foreign waif) and *Solidago macrophylla*, the latter also far down the mountain side.

It seemed noteworthy that within this scrub zone were several common woodland species, *Clintonia borealis*, *Maianthemum canadense*, *Trientalis americana*, *Cornus canadensis* and *Linnaea borealis*, var. *americana*, in full flower, though on the lower levels some had passed well toward mature seed time.

It may also be noteworthy that throughout the region under observation *Juniperus communis*, var. *depressa*, and *Myrica asplenifolia* were not observed.

Notes on Some Interesting Maine Lichens.

BY GEORGE K. MERRILL.

The following is a brief account of the notable lichens coming under my notice and forming part of the material collected at the Waterville, Wells and Kingfield meetings of the Josselyn Botanical Society.

Although it was anticipated that the calciferous slates of Waterville might bear some novel or interesting lichens, my search was nearly fruitless. Only one noteworthy lichen was found. Growing on naked rocks just above the then water level of the Kennebec River was found a plant at first taken for *Lecanora polytropa*, later considered to be *Lecanora saxicola dispersa*, and finally on microscopical examination definitely placed with *Blastenia rupestris* (Scop.) Zahl. This species, called by Tuckerman *Placodium rupestre*, is a distinctly calcophilous thing, and is not often collected. It has not been found on the lime rocks of Knox County, and has only been sent to me in material from Vermont. The species is cited in Tuckerman's Synopsis from Vermont, New York, Georgia and Alabama, but is not hitherto recorded from Maine. The total of the lichens collected or examined from Waterville is much the same as the aggregate found at the Gardiner and Brunswick meetings, or about one hundred and twenty-five numbers. This appears to be the maximum that one may find in two or three half days of desultory search.

Active exploration in Wells and vicinity proved rather disappointing. On a roadside ledge below Ogunquit was found a small specimen of *Stereocaulon coralloides* (Schreb.) Fr. This species, not infrequent in mountainous districts, is entirely out of range where found. Another interesting find was *Cetraria Fendleri* Tuck., growing on the rough bark of old spruces. This is the second station for Maine, the plant having been taken in Knox County some years ago. The latter station extends the known range of the species along the Atlantic seaboard about one hundred and fifty miles. *Cetraria juniperina* (L.), taken at the Wells meeting, was found by Mr. A. H. Norton in the white cedar swamp of Alfred. So far as I am aware, this is the first record for Maine. *Cetraria pinastri* (Scop.) Fr., I have collected or examined from seven of the sixteen counties of Maine, but the closely allied *C. juniperina* has thus far eluded me. Mr. Norton also sends to me from the Alfred swamp, gathered from cedar twigs, *Alectoria chalybeiformis*, forma *nidulifera* (Norrl.) Merl., in a perfectly characterized condition. This plant was first identified by the writer in American material about fifteen years since, and occasionally turns up from the northern United States and the Canadas. I do not know of a published record for the United States.

The writer found himself unable to attend either the Moosehead Lake or Kingfield meetings, but Mr. A. H. Norton on the latter occasion visited Mt. Bigelow, Dead River, and collected lichens on its summit and flanks. On the summit was found *Cetraria cucullata* (Bell.) Mudd, *Cetraria Islandica* in a fruited state, and *Cetraria Islandica crispa* Ach., in considerable abundance, with a portion of the specimens sparsely fruited. *C. cucullata* is an arctic and alpine plant, and hardly to be expected on a mountain of the moderate altitude of Mt. Bigelow. No portion of the material contained even fragments of *Cetraria nivalis*, invariably associated with *C. cucullata* on the New Hampshire mountains and on Mt. Katahdin, and no scrap of *Thamnolia vermicularis*, another associate, was found. While various writers, including Tuckerman, have ascribed *C. cucullata* to sub-alpine stations, the species is essentially Hudsonian in its zone relations. *Cetraria Islandica crispa* is another alpine and arctic plant of common occurrence within its zone limits, and in the specimens submitted by Mr. Norton presented that phase of development in which the laciniae are more or less erect rather than appressed and divergent. The plants were colored much as in the species, the laciniae narrowed upwards, the margins definitely incurved, setulose-spinulose, and with summits alone brown. The plants agree best with Scandinavian and Finnish examples in my herbarium. Later in the autumn of 1919 Mr. Norton visited Speckled Mountain, in Grafton, Oxford County, and found exactly similar associations of *C. cucullata* and *C. Islandica crispa* on its summit.

1920.

The Fryeburg Meeting.

BY ARTHUR H. NORTON.

The twenty-fifth annual meeting of the Josselyn Botanical Society was held at Fryeburg, Maine, July 6 to 9, 1920, with an attendance of twenty. Headquarters were at Argue Not Inn, which proved a most inviting and comfortable home for the members and their friends, and where everything possible was done for their convenience and comfort.

The Society was fortunate in finding, at her home in Fryeburg, Miss Harriett Abbott, whose extensive knowledge of the natural history, and especially botany, of the region was most liberally given, both as information for the guidance of parties and as a personal guide on as many occasions as possible.

Fryeburg is situated on the Saco River, where the stream emerges from the foothills of the White Mountain system and winds through sandy plains seaward. Such rock exposures as were visited were of granites and pegmatite, and glacial action of great magnitude was visible in the vast sand plains and frequent glacial and sink ponds of the region. The shores of the meandering Saco are well diversified with rich, old wooded banks or newer crumbling sandy banks. The eddies of the numerous bends of the river are reinforced with very broad beaches or strands of fine loose gravel and sand.

July 6th. The afternoon was devoted to an excursion to the eastern bank of the Saco River, below Weston's Bridge, to the lower extremity of the first sandy strand, about a mile below the bridge.

In the outskirts of the village were noted *Corylus americana* and *Corylus rostrata*, the first predominant, and *Erigeron philadelphicus* on the upper terrace or the Fryeburg plain, while the terrace below, the flood plain, locally known as the intervale, yielded *Carex Crawfordii*, *Carex Bebbii*, *Carex festucacea*, *Carex crinita* x *scabrata*, *Carex stricta*, *Smilax herba-*

cea and *Convolvulus sepium*. The banks of the river here, as at nearly every point observed, were studded with frequent clumps of large trees of *Acer saccharinum*, which had seeded extravagantly, and now the myriads of little seedlings were struggling to gain an existence in the sandy beaches, where most of them are doomed to destruction at the first stream flood. The sandy strands of the river afforded *Salix lucida* and *Salix cordata*, both frequent, *Salix petiolaris*, rare, and an abundance of *Salix sericea*. Here the latter presented three forms, the small-leaved and the long-leaved forms, already noted at Kingfield, with a third, a small-leaved form with the hairs more spreading and less shining when viewed from the apex, no less so when viewed from the base. All of the willows were in dense matted clumps or knolls, low and shrubby. Scattered between the knolls was *Agropyron repens*, generally slender and green, but occasionally stouter and very glaucous. *Danthonia spicata* was common here, and farther up the beach mats of *Andropogon scoparius* abounded, with very large mats of *Hudsonia tomentosa*, var. *intermedia*, binding the ridges of wind and water driven sand. A few young plants of *Polygonella articulata* were found. *Alnus crispa*, var. *mollis*, was common and *Apocynum cannabinum* abounded on all of the strands.

July 7th. The day was devoted to an all-day trip along the Lovell road, over the new bridge to Lily Pond in Sweden, back to Smart's Hill, and again over the new bridge, along the "old river," bank to the toll bridge, and return to point of starting over the Bridgton road. The sandy plains of Fryeburg were covered with an abundance of *Quercus ilicifolia* and *Vaccinium vacillans*. Frequent clumps of *Amelanchier stolonifera*, now ripening its juicy berries, and *Helianthemum canadense* were common.

In a boggy area, extending from the road to the Saco River, *Carex oligosperma* was abundant and *Viola primulifolia* and *Viola lanceolata* were common. At another boggy spot *Eriophorum viridi-carinatum* and *Salix pedicellaris*, var. *hypoglauca* were found.

The section locally called "the sand plains," a low, sandy area of large extent nearly at river level, in a bend of the Saco southwest of Fryeburg Center, was explored rather carefully. Here were found, in sandy ponds, *Scirpus Torreyi* and *Carex stricta*, var. *decora*, both common. On the sandy plain *Paronychia argyrocoma*, var. *albimontana*, was rare, and *Hudsonia tomentosa*, var. *intermedia*, grew in small, scattered clumps. The adjacent pine woods afforded *Veronica officinalis* and other dry-woods plants.

While one party was engaged with the exploration of the sand plains, Miss Abbott conducted another party to a station, well known to her, of *Kalmia latifolia*, returning with an ample supply of freshly blossomed specimens.

On a dry hillside near Fryeburg Center *Vitis labrusca* was collected, and on the sandy plains in Sweden *Deschampsia flexuosa*, *Helianthemum canadense* and *Convolvulus spithamaeus* were common, with the ever-present *Quercus ilicifolia*. *Amelanchier Bartramiana* was also found there. Lily Pond, a sink pond in the pine-forested plain, was visited, but proved uninteresting, the shores being covered almost entirely with *Chamaedaphne* to the water's edge. On a single sandy beach, a few feet long, *Rhynchospora glomerata* was found. Near the toll bridge, in Fryeburg, *Peltandra virginica* was found, and here, as at other suitable places about Fryeburg, *Pontederia cordata* was common. *Fraxinus pennsylvanica* was also found in the same vicinity. Farther along the road *Vitis novae-angliae* was found in several ample clumps. At various places along the roadside in Fryeburg *Juglans cinerea* was noticed, often at considerable distance from houses, and though considered by our drivers natives of the region, as an introduced species its scattered and frequent occurrence had the appearance of becoming feral.

On the evening of this day Mr. Henry Merrill, of Hiram, a thorough student of natural history and particularly several departments of botany, arrived, and having brought for exhibition a series of the *Botrychiums* of Maine and another series of variations of *Polystichum acrostichoides*, a meeting of the society was called to order and Mr. Merrill exhibited these specimens, talking informally and most interestingly of their characteristics and peculiarities, together with his experiences with them in the field. Mrs. F. S. Hamlin, of North Bridgton, had sent a fresh and very fine specimen of *Habenaria* *macrophylla* from Bridgton, and this was also exhibited and examined.

July 8th. The party first visited the northwestern extremity of Lovwell's Pond, in the vicinity of Battle Monument. Here a broad sandy beach slopes rather sharply up to a sea wall, behind which, in several places, are bogs containing pitcher plants, rhodora and *Chamaedaphne.*

At the eastern end of this beach, on a grassy bar near a narrow bog cove, *Cladium mariscoides* was found, and the beach was abundantly studded with clumps of *Prunus pumila*, heavily fruited.

The road was followed back to the edge of Fryeburg village, and southward to Brownfield to a point between Peary and Tibbetts Mountains, where an unnamed sink pond reposes in the depth of the valley. On the sandy plain between Lovwell's Pond and Fryeburg village *Prunus cuneata* was frequent, extending southward toward Brownfield along the road. Round Pond, in Fryeburg, a promising sink pond, said to have an ample strand, was visited, but with the wet conditions of the season was flooded to the grassland.

On the sandy plains and hills, and even in some of the boggy depressions, *Vaccinium vacillans*, the dominating species of the Fryeburg region, was still abundant. Clay's Pond and Black Pond, Fryeburg, were visited, both proving uninteresting, with *Chamaedaphne* closing in to the water's edge. At Black Pond *Decodon verticillatus* was found in small quantity. The shores and bottom of Peary Mountain Pond proved to be well surfaced with fine mud from the wash from its steep surroundings. Here *Juniperus virginiana*, not seen elsewhere in the region, was found, and small quantities of *Potamogeton Oakesianus* were present. Many dense, submerged clumps of *Galium Claytoni* and *Mentha arvensis* were seen, as evidence of high water.

In the afternoon a short trip was made over Weston's Bridge to the strand on the west bank of the Saco, below the bridge, and another strand on the east bank, above the bridge, was visited. On the moist, shaded banks of the river *Cystopteris fragilis*, *Asplenium Filix-femina*, var. *rubellum*, and *Smilacina stellata* were growing in luxuriant vegetation.

In a sandy field a clump of *Medicago sativa* and by the roadside *Lespedeza capitata* were found.

July 9th. The forenoon was devoted to a trip along the Lovell road, with stops at Swan's Falls, on the Saco, where *Hudsonia tomentosa*, var. *intermedia*, was found in small areas, and *Viola arenaria* was collected. Near the new bridge, along the river bank, *Alnus crispa*, var. *mollis*, was common, and *Asplenium Filix-femina*, var. *rubellum*, was again found. The afternoon was given to another trip to Lovwell's Pond, when the west side, from Battle Monument to Moose Rock, and the bog at the mouth of the incoming brook from Ward's Pond were explored. In the bog *Salix pedicillaris*, var. *hypoglauca*, *Rosa nitida*, *Rhododendron canadense* and *Kalmia polifolia* were found. The sedgy shores of the pond were densely covered with *Rhynchospora fusca* and *Carex vesicaria*, while higher up on the broad strand *Alnus crispa*, var. *mollis*, and *Prunus pumila* were conspicuously abundant, extending far down the lake side.

Attention was given to the algæ of the region by Dr. Susan Nichols, who has given the following preliminary report of conditions: Streams:—Water cold; stones and grass covered with *Tetraspora gelatinosa* and *lubrica*. River:—*Oedogonium cardiacum*, with young fruit. Lovwell's Pond:—*Nitella* Sp.(?), fruiting washed up on the shore in abundance.

Members of the Josselyn Botanical Society, 1920.

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Josselyn Botanical Society of Maine.

List of Annual Meetings.

1. Portland, July 12 to 16, 1895.
2. Farmington, July 8 to 10, 1896.
3. Dover and Foxcroft, July 6 to 9, 1897.
4. Waterville, August 30 to September 2, 1898.
5. Houlton, June 27 to 30, 1899.
6. East Parsonsfield, July 3 to 6, 1900.
7. Shapleigh, June 25 to 28, 1901.
8. Machias, July 8 to 11, 1902.
9. Skowhegan, June 29 to July 3, 1903.
10. Fort Kent, July 6 to 10, 1904.
11. Kittery Point, August 14 to 18, 1905.
12. Pleasant Ridge Plantation, July 3 to 6, 1906.
13. Oxford, July 1 to 6, 1907.
14. Manset, Mount Desert Island, August 4 to 8, 1908.
15. Peak's Island, June 29 to July 2, 1909.
16. Jackman, July 5 to 9, 1910.
17. Brunswick, August 22 to 25, 1911.
18. Gardiner, August 7 to 10, 1912.
19. Thomaston, August 12 to 15, 1913.
20. Van Buren, July 14 to 18, 1914.
21. Waterville, August 10 to 14, 1915.
22. Wells, August 8 to 11, 1916.
23. Greenville Junction, July 31 to August 4, 1917.
24. Omitted.
25. Kingfield, July 8 to 11, 1919.
26. Fryeburg, July 6 to 9, 1920.

Meetings Classified by Counties.

ANDROSCOGGIN.

AROOSTOOK.

Houlton, June, 1899.
Fort Kent, July, 1904.
Van Buren, July, 1914.

CUMBERLAND.

Portland, July, 1895.
Peak's Island, June–July, 1909.
Brunswick, August, 1911.

FRANKLIN.

Farmington, July, 1896.
Kingfield, July, 1919.

HANCOCK.

Manset, August, 1908.

KENNEBEC.

Waterville, August–September, 1898.
Gardiner, August, 1912.
Waterville, August, 1915.

KNOX.

Thomaston, August, 1913.

LINCOLN.

OXFORD.

Oxford, July, 1907.
Fryeburg, July, 1920.

PENOBSCOT.

PISCATAQUIS.

Dover–Foxcroft, July, 1897.
Greenville Junction, July–August, 1917.

SAGADAHOC.

SOMERSET.

Skowhegan, June-July, 1903.
Jackman, July, 1910.
Pleasant Ridge, July, 1906.

WALDO.

WASHINGTON.

Machias, July, 1902.

YORK.

Kittery, August, 1905.
East Parsonsfield, July, 1900.
Shapleigh, June, 1901.
Wells, August, 1916.

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